

## 5. 提出した質問書



QUESTIONNAIRE

NOV. 1986

JAPANESE PRELIMINARY STUDY TEAM

FOR

THE STUDY ON THE NATIONAL TRANSPORT PLAN

JAPAN INTERNATIONAL COOPERATION AGENCY

## I. GENERAL

1. The basic government policy regarding the National Transport Plan
2. Master Plan of the national transportation system and its stage plan in the 6th Five-Year Plan
3. Implementation and evaluation of the projects authorized in above mentioned plan
4. Problems and bottlenecks on the national transportation system
5. Location maps of each mode of transportation in Pakistan  
( road, railway, ports, and airports )
6. Economic development plans/programs in Pakistan
  - (1) outline of the 6th Five-Year Plan
  - (2) status of implementation of the 6th Five-Year Plan
  - (3) major development projects
7. Administrative organizations and their budget and personnel
  - (1) national government
  - (2) administration and operation bodies in transportation field
8. Technical problems to improve transportation facilities
9. Transportation studies which were conducted since the completion of the JICA study in May 1983
10. Statistics and other informations shown in the Appendix

## II. REVIEWING THE RECOMMENDATIONS POINTED OUT IN THE FORMER JICA STUDY

1. Improvement of transport and traffic data base
2. Improvement and expansion of NTRC
3. Needs for feasibility study for applicable projects
4. Urban transportation planning
5. Needs for study on operational and managerial efficiencies
6. Needs for integrated coordination in transport development studies on IWT, Canal Road, Farm-to-market Road

7. Needs for integrated coordination in implementation of containerization introduction
8. Semi-public passenger road transport organization in Baluchistan
9. Survey on conditions of road transport sector
10. Study on promotion of private investment in transport sector
11. Proper allocation of budget for maintenance

### III. RAILWAY

1. Government policy for utilization and improvement of railway in Pakistan
2. Organization of Pakistan Railway, and roles, responsibilities and budgets of each division.
3. Amount of the personnel which are classified for each part ( such as civil engineers in improvement dept. and civil engineers in maintenance dept., so and so )
4. Plan, to reduce the personnel, classified mentioned above
5. Roles of equipment modernizations concerning with the personnel reducing
6. Tariff of passenger and freight transport
7. Financial condition Pakistan Railway for last five years
  - (1) revenue ( passenger, freight, governmental subsidy, etc.)
  - (2) expense ( maintenance and repairs, renewal of equipment, operation fuel, personnel, material, tax and other public duty, interest, bond handling expensive, others, depreciation )

\*These must be divided for operation part and manufactory part
8. Long-term Plan or Master Plan for improvement of facilities

9. Investment programmes during the period of the 6th Five-Year Plan and their implementation
10. Priority between train speed and transport volume
  - (1) passenger
  - (2) freight
11. Train operation
  - (1) train diagram of each line
  - (2) permissible maximum train length ( Karachi-Lahore )
  - (3) types of locomotive and their maximum tractive force ( Karachi-Lahore, Bolan-section )
  - (4) break equipment and its faculty of locomotives mentioned above
  - (5) train speed in the steepest section and gradient in this section ( Bolan-section )
  - (6) minimum time at the station in a single track line for each signalling system ( waiting time for opposite train, etc. )
12. Design standards
  - (1) standard of track ( weight of rail per meter, thickness of ballast bed, kind of sleeper and interval of them, etc. )
  - (2) alignment of plane figure, especially in curve, and profile
  - (3) permissible maximum speed and its section
  - (4) permissible maximum passing tonnage and its section
  - (5) chart of point switch and permissible maximum speed on it
  - (6) forms of signaling system and their blocking section ( for single track and double track )
  - (7) illuminance of a signal lamp and its visible distance at least
13. Track layout of lines including passing track, especially in the stations ( Karachi-Lahore )

14. Effective platform length and passing track in the main station  
( Karachi-Lahore )
15. List of decrepit structures and their age
16. List of calamitous sections
17. Improvement plan of the sections mentioned in 15. and 16. above
18. Freight terminal
  - (1) outline of the Dry-Port near Lahore
  - (2) track layout and cargo handling facilities of railway in Karachi Port and Qasim Port
19. Present condition and future improvement plan of the access road to the major freight terminals
20. Difference in the figure of freight transport volumes ( ton-kilometers ) between "Pakistan Economic Survey" ( Economic affair's Wing ) and "Year Book of Information" ( Pakistan Railway )
21. The reason of increasing about average boarding kilometers per person by a large scale, compared 83/84 with 82/83 in the data of "Year-Book of Information"
22. Constraints of energy supply for railway ( electricity and fuel for each state )

#### IV. ROAD

1. Government policy for improvement of road in Pakistan
2. Organizations of road construction and maintenance bodies, and roles, responsibilities, budgets and personnel of each body
3. Long-term Plan or Master Plan for improvement of road
4. Investment programmes in the period of the 6th Five-Year Plan
  - (1) amount of investment
  - (2) time schedule, budgeting programmes and their implementations

- (3) target level of improvement
  - (4) list of improvement roads and their contents
  - (5) present conditions and future plans in each road mentioned above ( type, width, pavement, volume/capacity, traffic accident, maintenance cost, etc. )
5. Budgetting system of road improvement
    - (1) source of fund
    - (2) amount of budget by construction/maintenance body and by fund
  6. Outline of road transportation businesses and the regulations towards such businesses
  7. List of decrepit structures and their age
  8. List of calamitous sections
  9. Timetable and tariff of inter-regional bus services
  10. Regulations for the driving license and the vehicle inspection
  11. Roles and functions of National Logistic Cell
  12. Outline of toll road ( present situation and future plan )
  13. Present conditions of traffic congestion and over-loading on the trunk routes
  14. Desibn standard of road

## V. PORT

1. Government policy on functional divisions on Karachi and Qasim port, and on mini-port development on the Balchistan coast
2. Organizations of PSW, KPT and PQA, and their roles, responsibilities, financial status and personnel
3. Existing port facilities and port plannings in Karachi Port and Qasim Port
  - (1) layout of existing port facilities



- (2) outline of port facilities ( wharves, loading/unloading machines, waterways, warehouses and railways for ship cargo )
  - (3) port facilities under construction
  - (4) master plan of the port
4. Reviewing the implementation of the 6th Five-Year Plan
- (1) investment programmes on each port
  - (2) actual investment on each programme
  - (3) port facilities which were completed during the period of the 6th Five-Year Plan
  - (4) on going projects of the 6th Five-Year Plan
  - (5) change of port activities due to the completion of port facilities
5. Inland transport of seaborne cargo
- (1) conditions of traffic congestion in urban Karachi area
  - (2) present situation of the inland freight station ( Dry Port ) near Lahore
  - (3) seaborne cargo traffic between ports and their hinterland by mode and commodity classification

6. Present situation of the following port projects for the 6th Five-Year Plan which was proposed by the former JICA study team

| Name of Project                       | Location & Period           | Project Amount (Million Rs.) |       |       |
|---------------------------------------|-----------------------------|------------------------------|-------|-------|
|                                       |                             | L/C                          | F/C   | Total |
| Full Container Terminal               | Karachi Port<br>1983 - 1987 | 472                          | 751   | 1,223 |
| New Oil Berth                         | Karachi Port<br>1983 - 1985 | 40                           | 80    | 120   |
| Onshore Equipment                     | Karachi Port<br>1983 - 1987 | 21                           | 39    | 60    |
| Offshore Equipment                    | Karachi Port<br>1983 - 1987 | -                            | 150   | 150   |
| Oil Berth                             | Qasim Port<br>1985 - 1987   | 63                           | 95    | 158   |
| Fertilizer Terminal                   | Qasim Port<br>1983 - 1986   | 289                          | 201   | 490   |
| Wheat Terminal<br>Equipment & Storage | Qasim Port<br>1983 - 1984   | 81                           | 70    | 151   |
| Dredger & Equipment                   | Qasim Port<br>1983 - 1984   | -                            | 445   | 445   |
| Mini-Port                             | Gwadar<br>1983 - 1985       | 56                           | 270   | 326   |
| Marine Academy                        | Mauripur<br>1983 - 1987     | -                            | 61    | 61    |
| Jinnah Bridge<br>Phase II             | Karachi Port<br>1983-1987   | 150                          | 50    | 200   |
| Total                                 |                             | 1,172                        | 2,357 | 3,528 |

Source: JICA Study Team

7. Problems and bottlenecks with regard to port activities in Karachi Port and Qasim Port

8. Problems and bottlenecks on seaborne cargo transport

## VI. MERCHANT SHIPPING

1. Government policy on the national merchant fleet
2. Laws and regulations for shipping businesses
3. Organization of PNSC, and its roles, responsibilities, budget and personnel
4. Existing merchant ships operated by Pakistani companies  
( list of name, year of building and DWT )
5. Share of cargo handling by the Pakistani fleet in comparison with the foreign ones
6. Main international fleet route from/to Pakistan
7. Reviewing the implementation of the 6th Five-Year Plan
  - (1) aquisition of full container ships
  - (2) fleet replacement programme
  - (3) bulk carrier for steel mill
  - (4) tanker ( crude oil and edible oil )
  - (5) others

## VII. AIRPORT & AVIATION

1. Government policy on improvement and operation of airports
2. Organizations of airport development authority and aviation authority, and roles, responsibilities, budgets and personnel of each division
3. Progress made in the transfer of functions to the Civil Aviation Authority from MOD.
4. Long-term Plan or Master Plan for improvement of facilities in each airport
5. Investment programmes during the period of the 6th Five-Year Plan and their implementation
6. Tariff and charges for airport facilities in each airport
7. Number of diversions and their reasons in each airport

8. Transport facilities between airport and downtown
9. PIA fleet plan and financial report
10. Existing status of airport terminal facilities including cargo in principal airports

#### VIII. URBAN TRANSPORTATION

1. Level of traffic congestions in major cities
2. Master Plans of urban transportation in major cities
3. Function of railways for urban transport system
4. Present situations of the loop line in Karachi City named "Karachi circular railway"
5. Number of railway rollingstocks for urban transportation in Karachi City
6. Degree of retardation of road traffic caused by level crossing

#### IX. IMPLEMENTATION ARRANGEMENT

1. Could you tell us about counterpart personnel who assist and cooperate for this study ?
2. Could you tell us about the availability of computer without fee, if any, the types of the machines ?
3. Do you have any reports or informations concerning of this study ?
4. What would you request for the contents of this study ?

\* More detail are required from full-scale study team at the submission of the Inception Report

LIST OF NECESSARY DATA

| I T E M  | SCALE, AREA or RANGE   | TIME REQUIRED | AVAILABILITY |               | AUTHORITY | POSSIBLE SUBMIT TIME | TITLE OF DATA | LANGUAGE |
|--|--|---------------|--------------|---------------|-----------|----------------------|---------------|----------|
|  |  |               | YES/NO       | PLACE OF DATA |           |                      |               |          |
| I. SOCIO-ECONOMIC STATISTICS [ 1970~1985 ] and FUTURE PROJECTION [ 1986~2000 ] |  |               |              |               |           |                      |               |          |
| Population   | population, land area and population density                   | each state    | ⊙            |               |           |                      |               |          |
|  | number of household  | "             | ⊙            |               |           |                      |               |          |
|  | number of employees by industrial group                        | "             | ⊙            |               |           |                      |               |          |
|  | population and land area in Densely Inhabited District         | "             | ⊙            |               |           |                      |               |          |
| Economy  | Gross Domestic Product ( at current price and constant price ) | each state    | ⊙            |               |           |                      |               |          |
|  | Gross Product by industrial group                              | "             | ⊙            |               |           |                      |               |          |
|  | average family income and expenditure                          | "             | ⊙            |               |           |                      |               |          |
|  | distribution of families by income class                       | "             | ⊙            |               |           |                      |               |          |
|  | wholesale price index and consumer price index                 | "             | ⊙            |               |           |                      |               |          |
| import and export volume by major commodity item                               | "  |               |              |               |           |                      |               |          |

Remarks: We wish to take back ⊙ marked data this time

LIST OF NECESSARY DATA

( 2 )

| I T E M   | SCALE, AREA or RANGE   | TIME REQUIRED  | AVAILABILITY |               | AUTHORITY | POSSIBLE SUBMIT TIME | TITLE OF DATA | LANGUAGE |
|---|--|--|--------------|---------------|-----------|----------------------|---------------|----------|
|   |  |  | YES/NO       | PLACE OF DATA |           |                      |               |          |
| II. GENERAL TRANSPORTATION STATISTICS [ 1970~1985 ] and FUTURE PROJECTION [ 1986~2000 ] |  |  |              |               |           |                      |               |          |
| Transport volume  | persons and person-kilometers for each mode<br>tonnes and ton-kilometers for each mode<br>Origin-Destination table for each mode                                 | whole country and urban transportation in detail<br>whole country<br>" | ⊙<br>⊙       |               |           |                      |               |          |
| III. RAILWAY [ statistics : 1970~1985, projection : 1986~2000 ]                         |  |  |              |               |           |                      |               |          |
| Transportation  | persons and person-kilometers<br>tonnes and ton-kilometers<br>present situations at the broadest section, and the target of volume/capacity ratio at the section | each line<br>"   | ⊙<br>⊙       |               |           |                      |               |          |
| Rollingstock  | number of cars by each category and rank of ages<br>average train-kilometers and car-kilometers of locomotives and diesel cars                                   | whole country<br>"   |              |               |           |                      |               |          |
| Operating accident  | numbers, their causes, methods for recovery and recovery time needed   | "  |              |               |           |                      |               |          |

Remarks: We wish to take back ⊙ marked data this time

LIST OF NECESSARY DATA

( 3 )

| I T E M  | SCALE , AREA or RANGE   | TIME REQUIRED               | AVAILABILITY |               | AUTHORITY | POSSIBLE SUBMIT TIME | TITLE OF DATA | LANGUAGE |
|--|---|-----------------------------|--------------|---------------|-----------|----------------------|---------------|----------|
|  |   |                             | YES/NO       | PLACE OF DATA |           |                      |               |          |
| IV. ROAD [ statistics : 1970~1985, projection : 1986~2000 ]                |   |                             |              |               |           |                      |               |          |
| Present condition  | road length by state, maintenance body, width, pavement and volume/capacity ratio | whole country               | ⊙            |               |           |                      |               |          |
| Traffic volume   | number of passing cars on trunk road by category of cars                          | each section of trunk roads |              |               |           |                      |               |          |
| Car movement   | number of registered vehicles by vehicle types and rank of ages                   | each state                  | ⊙            |               |           |                      |               |          |
|  | number of vehicles owned by bus and trucking enterprises                          | "                           | ⊙            |               |           |                      |               |          |
|  | number of persons who have driving license  | "                           | ⊙            |               |           |                      |               |          |
|  | number of enterprises of bus service and trucking business by business scale      | "                           | ⊙            |               |           |                      |               |          |
| Traffic accident numbers, their causes, number of persons injured and dead |   | "                           |              |               |           |                      |               |          |

Remarks: We wish to take back ⊙ marked data this time

LIST OF NECESSARY DATA

( 4 )

| I T E M  | SCALE, AREA or RANGE | TIME REQUIRED | AVAILABILITY |               | AUTHORITY | POSSIBLE SUBMIT TIME | TITLE OF DATA | LANGUAGE |
|--|----------------------|---------------|--------------|---------------|-----------|----------------------|---------------|----------|
|  |                      |               | YES/NO       | PLACE OF DATA |           |                      |               |          |
| V. PORT and MERCHANT SHIPPING [ statistics : 1970~1985, projection : 1986~2000 ]             |                      |               |              |               |           |                      |               |          |
| Port activity  |                      |               |              |               |           |                      |               |          |
| import/export cargo volume by commodity classification                                       | Karachi and Quaim    | ⊙             |              |               |           |                      |               |          |
| container cargo volume by commodity classification   | "                    | ⊙             |              |               |           |                      |               |          |
| number of vessels calling by size classification   | "                    | ⊙             |              |               |           |                      |               |          |
| cargo traffic volume between ports and their hinterland by mode and commodity classification | "                    |               |              |               |           |                      |               |          |
| number of passengers embarking and disembarking  | "                    |               |              |               |           |                      |               |          |
| VI. AIRPORT and AVIATION [ statistics : 1970~1985, projection : 1986~2000 ]                  |                      |               |              |               |           |                      |               |          |
| Air transport activity   |                      |               |              |               |           |                      |               |          |
| number of passengers carried by commercial air transport                                     | principal airports   |               |              |               |           |                      |               |          |
| freight in tonnes carried by commercial air transport  | "                    |               |              |               |           |                      |               |          |
| total aircraft movements   | "                    |               |              |               |           |                      |               |          |
| peak-day traffic   | each airroute        |               |              |               |           |                      |               |          |

Remarks: We wish to take back ⊙ marked data this time



LIST OF NECESSARY DATA

( 5 )

| I T E M   | SCALE , AREA or RANGE | TIME REQUIRED | AVAILABILITY |               | AUTHORITY | POSSIBLE SUBMIT TIME | TITLE OF DATA | LANGUAGE |
|---|-----------------------|---------------|--------------|---------------|-----------|----------------------|---------------|----------|
|   |                       |               | YES/NO       | PLACE OF DATA |           |                      |               |          |
| VII. OTHERS   |                       |               |              |               |           |                      |               |          |
| Cost<br>construction materials<br>labour wages<br>land price ( urban and suburb )<br>interest rate<br>method of depreciations for each ( trees<br>port facility           | each state            |               |              |               |           |                      |               |          |
|   | " "                   |               |              |               |           |                      |               |          |
|   | whole country         |               |              |               |           |                      |               |          |
| Others<br>List of major constructors<br>( name, address, capital )<br>List of major consultants for traffic<br>research<br>( name, address and number of<br>specialists ) | whole country         |               |              |               |           |                      |               |          |
|   | " "                   |               |              |               |           |                      |               |          |

Remarks: We wish to take back ☉ marked data this time



## 6. 収集資料リスト



( 一般 )

1) SIXTH FIVE YEAR PLAN 1983-88

CHAPTER 15

TRANSPORT AND COMMUNICATIONS:

PROVIDING THE MISSING INFRASTRUCTURE

GOVERNMENT OF PAKISTAN, PLANNING COMMISSION ISLAMABAD

2) FEDERAL GOVERNMENT

PUBLIC SECTOR DEVELOPMENT

PROGRAMME (REVISED)

1985-86

GOVERNMENT OF PAKISTAN

PLANNING COMMISSION

August, 1985

3)

1985-86

ECONOMIC SURVEY

GOVERNMENT OF PAKISTAN,  
FINANCE DIVISION,  
ECONOMIC ADVISERS'S WING,  
ISLAMABAD

(鉄 道)

- 1) Time table for passenger trains
- 2) Transport Options For Developing Countries  
(Written by General Manager)
- 3) Year book of Information  
(83/84 及び 84/85)
- 4) 第6次5か年計画と決算, 予算及び今後の動向 (項目別)
- 5) 老朽施設年次推移 (車両, 軌道)
- 6) 国鉄職員数
- 7) 収入, 支出 項目別表
- 8) 機関車種別, 出力, ブレーキシステム, 台数
- 9) 信号システムの種類
- 10) 閉塞システムの種類
- 11) 単線対向列車待ち最小所要時分 (各信号システム別)
- 12) 分岐器種別と通過速度
- 13) 信号最小見通し距離
- 14) 区間別線路規格図
- 15) 区間別制限速度
- 16) その他主要駅平面図
- 17) オイル輸送車月別稼働数
- 18) 各駅待避線有効長
- 19) ラホール・ドライポート 統計及び平面図

④ 道路

- 1) National Highway Board  
Ministry of Communications

PROPOSED SEVENTH FIVE YEAR PLAN (1988-93)  
(HIGHWAY SECTOR)

- 2) Directorate General  
National Highways  
publication Nov. 1982

CONSTRUCTION OF ADDITIONAL CARRIAGEWAY

(KARACHI-PESHAWAR)  
THROUGH PRIVATE SECTOR FINANCING

- 3) Government of Pakistan  
Ministry of communications  
(communications Division)

Organization Chart of D.G.N.H

( 港湾・海運 )

カラチ港

- 1) KPT Year Book 1985/86
- 2) Karachi Port Master Plan

カシム港

- 1) Port Brochure
- 2) Operational Statistics, (November 11, 1986)
- 3) Quarterly Progress Report (July to September, 1986)
- 4) Progress Report (October, 1986)
- 5) Report of Sub Working Group on Port, Shipping and Inland Water Transport for of the Plan (1988-93) and the Prospective Plan 1986-2006
- 6) Materials with regards to Tariff.

PNSC

- 1) Report and Accounts for the Year Ended 30th June, 1983
- 2) Working Papers on various matters



(空港 • 航空)

- 1) CIVIL AVIATION IN PAKISTAN
- 2) Civil Aviation Authority ANNUAL REPORT AND ACCOUNTS 1984-85
- 3) CIVIL AVIATION STATISTICS 1985-84
- 4) Civil Aviation Training Institute Hyderabad, Pakistan
- 5) Air Information Publication (AIP)  
PAKISTAN
- 6) Organization Chart of CAA
- 7) Organization Chart of Karachi  
CAA OFFICE
- 8) PIA-Yesterday and Today
- 9) ROLE AND PERFORMANCE OF PIA
- 10) PIA Annual Report 1981-82  
" 1982-83  
" 1983-84  
" 1984-85

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## 7. NTRCの刊行物リスト

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LIST OF RESEARCH STUDIES

NTRC-D.S-7

Mr. Shamim Ahmed,  
Research Officer

October, 1986

COMPLETED STUDIES

LIST OF RESEARCH STUDIES  
NATIONAL TRANSPORT RESEARCH CENTRE

| Sl.No. | Title   | Author/<br>Co-ordinator   | Date of<br>Completion |
|--------|---|---|-----------------------|
| NTRC-1 | Economics of Electrification<br>Comparative Cost of Diesel<br>and Electric Traction on<br>Khanewal-Samasatta Section of<br>Pakistan Railways. | Mr. Abdul Majeed,<br>Deputy Chief   | February, 1975        |
| NTRC-2 | Inland Water Route-Port<br>Qasim Sukkur.  | NESPAK Limited  | May, 1975             |
| NTRC-3 | Highway Improvement<br>Priority Criteria.   | Mr. M. Sadiq Swati,<br>Chief  | January, 1976         |
| NTRC-4 | Pilot Origin and Destination<br>Survey at Mile 11 Lahore-<br>Multan Road on 21st October,<br>1975.  | Mr. Abdul Majeed,<br>Deputy Chief   | January, 1976         |
| NTRC-5 | Inland Traffic Forecast<br>1980-81.   | Mr. Abdul Majeed,<br>Deputy Chief   | February, 1976        |
| NTRC-6 | Cargo Port Traffic Fore-<br>cast for Pakistan (1974-75<br>to 1989-90).  | i) Mr. Ghulam Rasul,<br>Jt. Chief Economist<br>ii) Mr. Abdul Majeed,<br>Deputy Chief  | February, 1976        |
| NTRC-7 | Organization of NTRC<br>Interim Report.   | Prof. B.T. Bayliss<br>Consultant, NTRC  | April, 1976           |
| NTRC-8 | Effects of Highway Design<br>Elements on the Capacity<br>of two-lane Roads.   | Malik Muhammad Saeed<br>Khan, Deputy Chief  | August, 1976          |
| NTRC-9 | Farm-to-Market Roads<br>Survey  | i) Transport Consul-<br>tant and Surveyors<br>ii) Ascon-Bolan and<br>Associates<br>iii) Sharp International<br>Ltd.<br>iv) Republic Engineering<br>Corporation Ltd. | November, 1976        |

| Sl.No.  | Title  | Author/<br>Co-ordinator                 | Date of<br>Completion |
|---------|--|---|-----------------------|
| NTRC-10 | Pakistan Maritime Transport Study  | Dr. R. D. Osmer,<br>Adviser Shipping    | January, 1977         |
| NTRC-11 | Lawari Ropeway Study.  | Mr. Bernhard Burgi,<br>Swiss Consultant | February, 1977        |
| NTRC-12 | A Note on Petrol Versus Diesel Transport - An Assessment of a Policy Option. | Mr. Abdul Majeed,<br>Deputy Chief       | August, 1977          |
| NTRC-13 | Re-organization of Administrative Control of Transport                       | Mr. M. Sadiq Swati,<br>Chief            | October, 1977         |
| NTRC-14 | Change of Passenger Class Structure of Pakistan Railways Effect on Revenues. | Mr. Abdul Majeed,<br>Deputy Chief       | November, 1977        |
| NTRC-15 | Transport Requirements Storage of Buses.                                     | Mr. Abdul Majeed,<br>Deputy Chief       | October, 1978         |
| NTRC-16 | Economics of Pipeline Versus Rail.   | Mr. Abdul Majeed,<br>Deputy Chief       | December, 1977        |
| NTRC-17 | Pakistan Highway Code.   | Mr. M. Sadiq Swati,<br>Chief            | December, 1977        |
| NTRC-18 | Re-Organization of Traffic Police.   | Mr. M. Sadiq Swati,<br>Chief            | January, 1978         |
| NTRC-19 | Draft Motor Vehicle Ordinance, 1978.   | Mr. M. Sadiq Swati,<br>Chief            | January, 1978         |
| NTRC-20 | Traffic Survey of Islamabad Highway (Dual Carriageway).                      | Mr. Abdul Majeed,<br>Deputy Chief       | June, 1978            |
| NTRC-21 | Organization of NTRC Final Report.   | Prof. E. T. Baylis,<br>Consultant, NTRC | July, 1978            |
| NTRC-22 | Effect of Increase in Bus Fares on Common Man's Budget.                      | Mr. Abdul Majeed,<br>Deputy Chief       | July, 1978            |
| NTRC-23 | Highway Operating Speeds of Government and Private Bus Drivers.              | Mr. Abdul Majeed,<br>Deputy Chief       | August, 1978          |



| Sl.No.  | Title   | Author/<br>Co-ordinator   | Date of<br>Completion |
|---------|---|---|-----------------------|
| NTRC-24 | Containerization in Pakistan Interim Report.  | Dr. R. D. Osmer, Adviser Shipping                                       | November, 1977        |
| NTRC-25 | Modern Transportation.  | i) Mr. M. Sadiq Swati, Chief<br>ii) Mr. M. Kazim Idris, Assistant Chief | December, 1978        |
| NTRC-26 | Survey of Bus Services for Islamabad Secretariat  | Mr. Abdul Majeed, Deputy Chief  | December, 1978        |
| NTRC-27 | Accident Study for Punjab   | i) Mr. M. Sadiq Swati, Chief<br>ii) Mr. M. Kazim Idris, Assistant Chief | December, 1978        |
| NTRC-28 | Containerization in Pakistan Final Report.  | Dr. R. D. Osmer, Adviser Shipping                                       | January, 1979         |
| NTRC-29 | Feasibility Study for the Operation of a Passenger/ro-ro- ferry service to the Gulf by P.N.S.C. | Dr. R. D. Osmer, Adviser Shipping                                       | March, 1979           |
| NTRC-30 | Transport Data Collection, Storage & Retrieval System   | Mr. M. Asif Khan, Deputy Chief  | March, 1979           |
| NTRC-31 | Highway Transportation Studies and Surveys.   | Mr. M. Aslam Farouk, Deputy Chief                                       | April, 1979           |
| NTRC-32 | National Port Policy  | Dr. R. D. Osmer, Adviser Shipping                                       | May, 1979             |
| NTRC-33 | Bus Passenger Loads and Mileage A Survey of Intercity Bus Operations.                           | Mr. Abdul Majeed, Deputy Chief  | May, 1979             |
| NTRC-34 | Motor Vehicle Ordinance- Working Paper.   | Mr. M. Sadiq Swati, Chief   | June, 1979            |
| NTRC-35 | Canal Roads for Public Use (Feasibility Study)  | i) Mr. M. Sadiq Swati, Chief<br>ii) Mr. M. A. Farouk, Deputy Chief      | July, 1979            |

| Sl.No.  | Title   | Author/<br>Co-ordinator   | Date of<br>Completion |
|---------|---|---|-----------------------|
| NTRC-36 | Choice of Mode for Journey to work (For Government Employees).                    | Mr. Abdul Majeed,<br>Deputy Chief   | August, 1979          |
| NTRC-37 | Psychological Attitudes Towards Highway Safety.                                   | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Prof. Mumtaz Danilal<br>Shah, Consultant | January, 1980         |
| NTRC-38 | Bus Make Study.   | Mr. M. A. Farouk,<br>Deputy Chief   | March, 1980           |
| NTRC-39 | Abstract of Research/Desk Studies of National Transport Research Centre.          | Mr. M. Kazim Idris,<br>Assistant Chief  | March, 1980           |
| NTRC-40 | Establishment of NTRC Phase-I (Revised) PC-II                                     | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. Abdul Majeed,<br>Deputy Chief        | July, 1980            |
| NTRC-41 | Establishment of NTRC PC-II, Phase-II.  | Mr. M. Sadiq Swati,<br>Chief  | March, 1983           |
| NTRC-42 | Role of Transportation in Development.  | Mr. M. A. Farouk,<br>Deputy Chief   | July, 1980            |
| NTRC-43 | Real Problem of Highway Safety in Pakistan.                                       | Mr. M. Sadiq Swati,<br>Chief  | July, 1980            |
| NTRC-44 | Traffic Enforcement/Plan for Rawalpindi.  | Mr. M. Sadiq Swati,<br>Chief.   | November, 1979        |
| NTRC-45 | Review of Port Traffic forecasts with particular Reference to Fertilizer Imports. | Mr. Abdul Majeed,<br>Deputy Chief   | August, 1980          |
| NTRC-46 | Effectiveness of Traffic Police Training.   | Mr. Syed Muhammad,<br>Consultant  | September, 1980       |
| NTRC-47 | Road Safety Ordinance, 1980   | Mr. M. Sadiq Swati,<br>Chief  | October, 1980         |

| Sl. No. | Title   | Author/<br>Co-ordinator   | Date of<br>Completion |
|---------|---|---|-----------------------|
| NTRC-48 | Transport Bulletin.   | Dr. M. Qasim Rind<br>Assistant Chief  | November, 1980        |
| NTRC-49 | Energy Use in Transport.  | Mr. M. Abdullah,<br>Chairman, Department<br>of Electrical Engg.<br>Peshawar   | February, 1981        |
| NTRC-50 | Investment Programme<br>and Development Projects<br>of PIAC.                                  | Mr. Abdul Majeed,<br>Deputy Chief   | July, 1980            |
| NTRC-51 | Highway Speed Survey.   | Mr. Abdul Majeed,<br>Deputy Chief   | November, 1980        |
| NTRC-52 | Manual of Uniform Traffic<br>Control Devices.   | Mr. M. Sadiq Swati,<br>Chief  | July, 1981            |
| NTRC-53 | Computerized Reservation<br>of PIAC - A Re-Appraisal<br>of Project                            | Mr. Abdul Majeed,<br>Deputy Chief   | June, 1980            |
| NTRC-54 | Fuel Consumption Study.   | Mr. Abdul Majeed,<br>Deputy Chief   | July, 1981            |
| NTRC-55 | Traffic Factors for<br>Pakistan.  | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. M. Kazim Idris,<br>Assistant Chief | March, 1982           |
| NTRC-56 | Report on Fourth EDI<br>Planning Commission<br>Course on Transport<br>ation Projects Planning | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. M. Kazim Idris,<br>Assistant Chief | November, 1979        |
| NTRC-57 | National Transport Plan<br>Study.   | JICA, T&C and NTRC  | May, 1983             |
| NTRC-58 | Utilization of Technical<br>Manpower in FWDs,   | Mr. M. A. Farouk,<br>Deputy Chief   | February, 1981        |
| NTRC-59 | Effect of Enforcement on<br>Road User's Behaviour   | Mr. M. Sadiq Swati,<br>Chief  | March, 1981           |
| NTRC-60 | Inland Water Transport in<br>Pakistan.  | Mr. M. A. Farouk,<br>Deputy Chief   | September, 1981       |

| Sl. No. | Title  | Author/<br>Co-ordinator  | Date of<br>Completion |
|---------|--|--|-----------------------|
| NTRC-61 | Transport Research and Development in Pakistan.                    | Mr. M. A. Farouk,<br>Deputy Chief  | October, 1981         |
| NTRC-62 | Bus Driver Training Pilot Study.                                   | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. A. J. Downing,<br>Adviser     | December, 1981        |
| NTRC-63 | Multi Axle Vehicle Survey.   | Mr. Abdul Majeed,<br>Deputy Chief  | October, 1982         |
| NTRC-64 | Road Accidents in Pakistan.  | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. A. J. Downing,<br>Adviser.    | January, 1983         |
| NTRC-65 | Axle Load Survey   | Mr. Abdul Majeed,<br>Deputy Chief  | October, 1982         |
| NTRC-66 | Review of Vehicle Operating Equipment and Inventory in Pakistan.   | Mr. Abdul Majeed,<br>Deputy Chief  | November, 1983        |
| NTRC-67 | Road Traffic Origin-Destination Survey (1979-80)                   | Mr. Abdul Majeed,<br>Deputy Chief  | June, 1983            |
| NTRC-68 | Transport Alternatives for Sixth Plan.                             | Mr. M. Sadiq Swati,<br>Chief   | August, 1983          |
| NTRC-69 | Survey of Skidding Resistance Values in Main Roads in Pakistan.    | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. A. J. Downing,<br>Adviser     | December, 1983        |
| NTRC-70 | 5th Planning Commission Course on Transportation Project Planning. | Mr. M. Sadiq Swati,<br>Chief   | December, 1983        |
| NTRC-71 | Economic Implication of Vehicle Overloading.                       | Mr. Abdul Majeed,<br>Deputy Chief  | April, 1983           |
| NTRC-72 | Road Research Division in NTRC.                                    | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. Abdul Majeed,<br>Deputy Chief | May, 1984             |

| Sl. No. | Title   | Author/<br>Coordinator   | Date of<br>Completion |
|---------|---|--|-----------------------|
| NTRC-73 | Road Development Plan<br>Azad Jammu & Kashmir<br>(1983-88)  | Mr. M. Sadiq Swati,<br>Chief   | April, 1983           |
| NTRC-74 | Transport Bulletin<br>(Supplementary No. 1)   | Mr. Naeem Ullah,<br>Research Officer   | November, 1981        |
| NTRC-75 | Five Year Plan for F.W.O.   | Mr. M. Sadiq Swati,<br>Chief   | June, 1980            |
| NTRC-76 | Abstract of Research<br>Studies of National<br>Transport Research<br>Centre.                      | i) Mr. Naeem Ullah,<br>Assistant Chief<br>ii) Mr. Shamim Ahmed,<br>Research Officer  | May, 1984             |
| NTRC-77 | Motor Vehicle Utilization<br>Survey.  | Mr. Shamim Ahmed,<br>Research Officer  | June, 1985            |
| NTRC-78 | A Review of Design<br>Standards for Tertiary<br>Rural Roads.                                      | Mr. John Smith,<br>ODA, Expert   | November, 1984        |
| NTRC-79 | Vehicle Operating Cost<br>Study.  | i) Mr. Abdul Majeed,<br>Deputy Chief<br>ii) Mr. S. A. Rehman,<br>Transport Economist | January, 1985         |
| NTRC-80 | The Volume and Composi-<br>tion of Traffic on<br>Tertiary Rural Roads.                            | Mr. John Smith,<br>ODA, Expert   | January, 1985         |
| NTRC-81 | Public Service Vehicle<br>Survey.   | Mr. Shamim Ahmed,<br>Research Officer  | June, 1985            |
| NTRC-82 | A Study of Design Stand-<br>ard for Surface width<br>and Design Speed on<br>Tertiary Rural Roads. | Mr. John Smith,<br>ODA, Expert   | February, 1985        |
| NTRC-83 | Transport Statistics,<br>1984   | Mr. S. H. Hundal,<br>Deputy Chief  | April, 1985           |

| Sl. No. | Title  | Author/<br>Co-ordinator  | Date of<br>Completion |
|---------|--|--|-----------------------|
| NTRC-84 | Intermodal Choice Motivation.  | Mr. S. H. Hundal,<br>Deputy Chief  | December, 1984        |
| NTRC-85 | Road Accidents Counter Measures in Pakistan.   | i) Mr. A. J. Downing,<br>Adviser<br>ii) Mr. M. A. Tahir,<br>Sr. Research Officer | June, 1985            |
| NTRC-86 | Transport Demand for Major Commodities.  | Mr. Abdul Majeed,<br>Deputy Chief  | June, 1985            |
| NTRC-87 | O.D. Survey for Rail   | Mr. Abdul Majeed,<br>Deputy Chief  | June, 1985            |
| NTRC-88 | 6th Planning Commission Course on Transportation Project Planning.                                 | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. Masood Bakht,<br>Research Officer     | May, 1985             |
| NTRC-89 | Origin Destination Survey for the proposed Link Road between Super Highways and National Highways. | Mr. Masood Bakht,<br>Research Officer  | March, 1986           |
| NTRC-90 | Survival Rate of Motor Vehicle   | Mr. S. H. Hundal,<br>Deputy Chief.   | December, 1985        |
| NTRC-91 | 7th Planning Commission Course on Transportation Project Planning.                                 | i) Mr. M. Sadiq Swati,<br>Chief.<br>ii) Mr. Naeem Ullah,<br>Assistant Chief      | December, 1985        |
| NTRC-92 | The Effect of Road work Signs on Driver Behaviour  | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. A. J. Downing,<br>Advisor             | October, 1986         |
| NTRC-93 | Abstract of Research Studies of NTRC (Third Issue)   | Mr. Shamim Ahmed,<br>Research Officer  | October, 1986         |

STUDIES IN HAND

| Sl.No. | Title   | Author/Co-ordinator  |
|--------|---|--|
| NTRC-  | Improvement in Taxi Services                        | Prof. David A. Briggs<br>ODA Expert  |
| NTRC-  | Traffic Count Programme<br>Phase-I                  | Mr. Mascod Bakht,<br>Research Officer                                      |
| NTRC-  | Traffic Count Programme<br>Phase-II                 | Mr. Mascod Bakht,<br>Research Officer                                      |
| NTRC-  | Electric Transport                                  | Mr. M. Kazim Idris,<br>Deputy Chief  |
| NTRC-  | Unit Cost of Road Construction<br>and Bridges       | Mr. Bashir Ahmed,<br>Deputy Chief  |
| NTRC-  | Survey of Road Construction<br>Machinery            | Mr. M. Sadiq Swati,<br>Chief   |
| NTRC-  | Urban Bus Pilot Study                               | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. M. Kazim Idris,<br>Deputy Chief |
| NTRC-  | Inland Water Transport                              | Mr. M. Sadiq Swati,<br>Chief   |
| NTRC-  | Quality Control of Road<br>Construction and Bridges | Mr. Bashir Ahmed,<br>Deputy Chief  |
| NTRC-  | Un-Remunerative Rail Lines                          | Mr. M. Sadiq Swati,<br>Chief   |
| NTRC-  | Prime Minister's Manifesto<br>for Rural Roads       | Mr. Bashir Ahmed,<br>Deputy Chief  |
| NTRC-  | Role of Tractor Trolleys in<br>Transportation       | Mr. Shamsuddin Qureshi,<br>Assistant Chief                                 |
| NTRC-  | Brochure of NTRC                                    | Mr. Naeem Ullah,<br>Assistant Chief  |
| NTRC-  | Demonstration Project.                              | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. Bashir Ahmed,<br>Deputy Chief   |



| Sl. No. | Title   | Author/Co-ordinator  |
|---------|---|--|
| NTRC-   | Intersection Improvement at Peshawar.                             | Prof. David A. Briggs,<br>ODA Expert                                 |
| NTRC-   | PCU Equalancy Factor.   | Prof. David A. Briggs,<br>ODA Expert                                 |
| NTRC-   | Economic of Mini-Bus Operations.                                  | Prof. David A. Briggs,<br>ODA Expert                                 |
| NTRC-   | Trucks Industry Survey  | Mr. John L. Hine,<br>ODA Expert                                      |
| NTRC-   | Effect of Road Roughness on Freight Tariffs.                      | Mr. John L. Hine,<br>ODA Expert                                      |
| NTRC-   | Role of Improved Communication on Truck Utilization               | Mr. John L. Hine,<br>ODA Expert                                      |
| NTRC-   | Economic of Truck Sizes   | Mr. Abdul Majeed,<br>Deputy Chief                                    |
| NTRC-   | Re-Training Bus Drivers and Accident Reduction.                   | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. A. J. Downing,<br>Advisor |
| NTRC-   | Drivers Awareness of Road Work Signes and their Reaction to them. | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. A. J. Downing,<br>Advisor |
| NTRC-   | Low Cost Remedial Measures on the National Highways in Pakistan.  | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. A. J. Downing,<br>Advisor |
| NTRC-   | Road Safety Seminar   | Mr. M. Sadiq Swati,<br>Chief   |
| NTRC-   | The Effect of Road Markings on Drivers Behaviour.                 | i) Mr. M. Sadiq Swati,<br>Chief<br>ii) Mr. A. J. Downing,<br>Advisor |

| Sl. No. | Title   | Author/Co-ordinator  |
|---------|---|--|
| NTRC-   | Road Accidents Counter Measures in Pakistan         | i) Mr. M. Sadiq Swati, Chief<br>ii) Mr. A. J. Downing, Advisor |
| NTRC-   | Police Patrol Study.                                | Mr. M. Sadiq Swati, Chief                                      |
| NTRC-   | Effectiveness of Bus Drivers Training Course        | i) Mr. M. Sadiq Swati, Chief<br>ii) Mr. A. J. Downing, Advisor |
| NTRC-   | Effects of Police Presence on Drivers Behaviour.    | i) Mr. M. Sadiq Swati, Chief<br>ii) Mr. A. J. Downing, Advisor |
| NTRC-   | Accident Under Reporting Study                      | Mr. M. Sadiq Swati, Chief                                      |
| NTRC-   | The Effect of Police Radar Traps on Drivers Speeds. | i) Mr. M. Sadiq Swati, Chief<br>ii) Mr. A. J. Downing, Advisor |

DISSEMINATION STUDIES

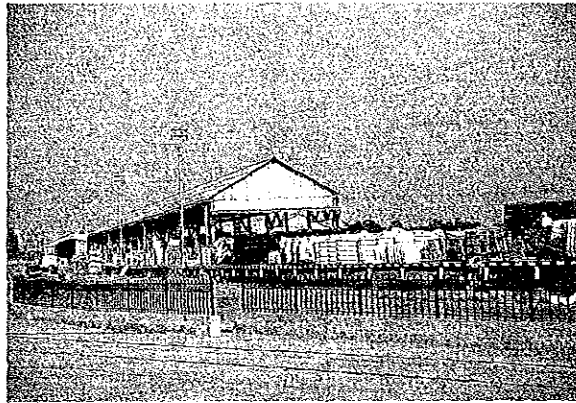
| Sl. No.    | Title   | Author/<br>Co-ordinator   | Date of<br>Completion                             |
|------------|---|---|---|
| NTRC-D.S-1 | Manual of Road Construction Engineering                 | Col. Raza Hussain,<br>Project Director,<br>Federal Rural Roads<br>Engineering Cell. | January, 1983                                     |
| NTRC-D.S-2 | Manual of Stage Construction of Rural Roads             | Col. Raza Hussain,<br>Project Director,<br>Federal Rural Roads<br>Engineering Cell  | January, 1983                                     |
| NTRC-D.S-3 | Manual of Maintenance of Low Volume Unpaved Rural Roads | Col. Raza Hussain,<br>Project Director,<br>Federal Rural Roads<br>Engineering Cell  | January, 1983                                     |
| NTRC-D.S-4 | Manual of Vibratory Compaction                          | Col. Raza Hussain,<br>Project Director,<br>Federal Rural Roads<br>Engineering Cell  | March, 1984                                       |
| NTRC-D.S-5 | Bahawalpur Traffic Accident (Case Study)                | Mr. Asad Muhammad Alvi,<br>Deputy Inspector<br>General of Police                    | March, 1984                                       |
| NTRC-D.S-6 | Manual of Rural Roads Drainage                          | Mr. Muhammad Kashif<br>Consultant   | May, 1984   |
| NTRC-D.S-7 | List of Research Studies                                | Mr. Shamim Ahmed,<br>Research Officer   | i) August, 1984<br>ii) October, 1986<br>(Revised) |

## 8. 関 連 写 真

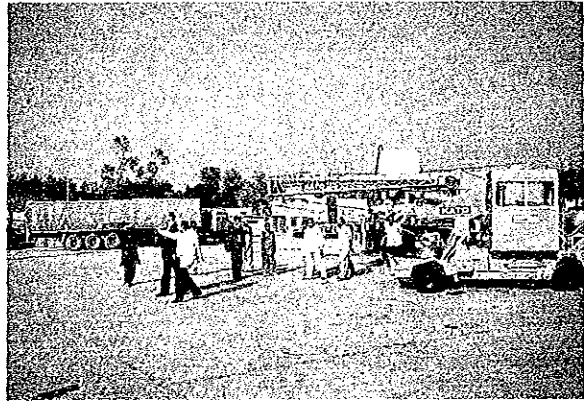
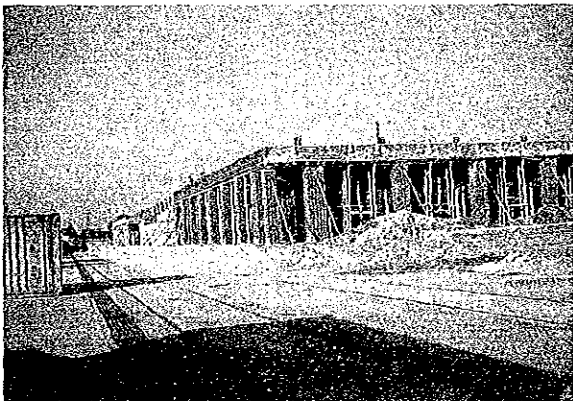




Scope of Work 署名

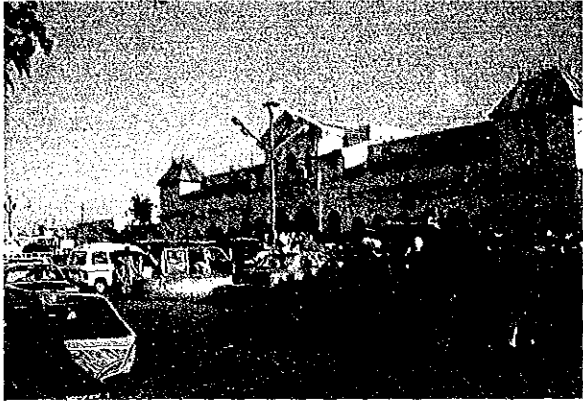


## ラホール・ドライポート



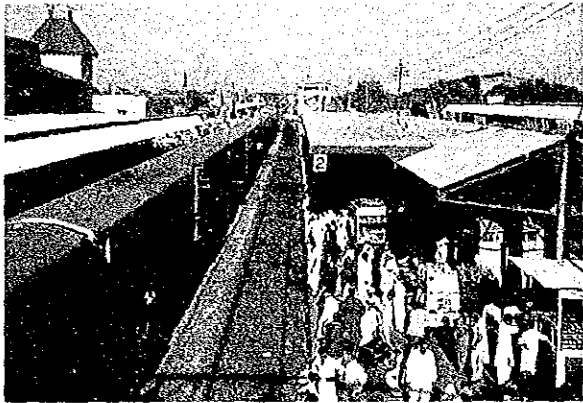






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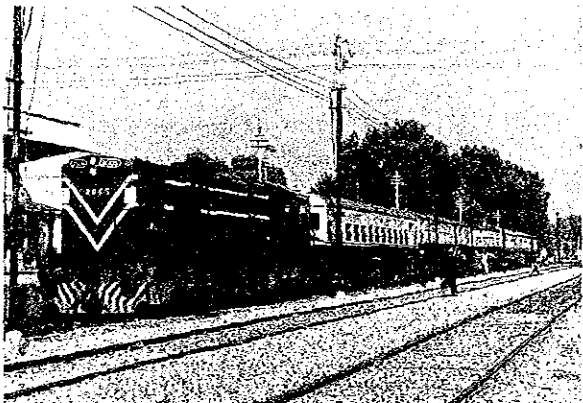
鉄 道



カラチ・カント駅、構内



ラワルピンジ駅、駅前



ペシャワール駅、旅客列車

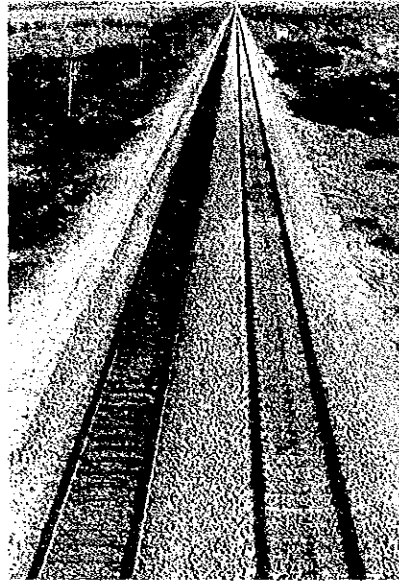


SLの牽くローカル列車





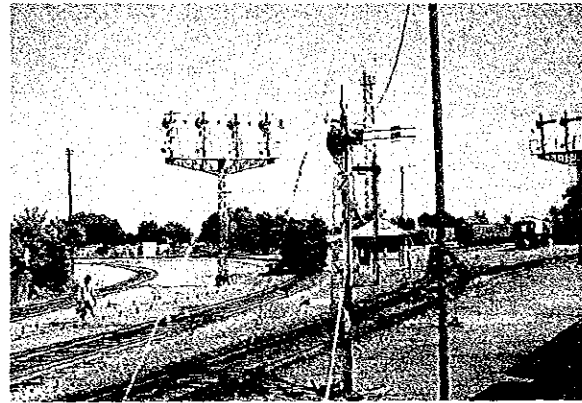
石油輸送列車



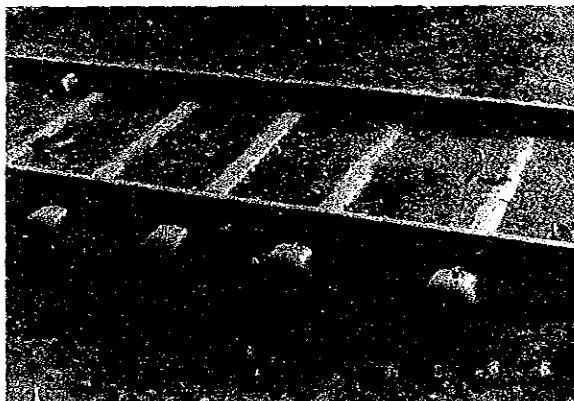
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間の軌道状況



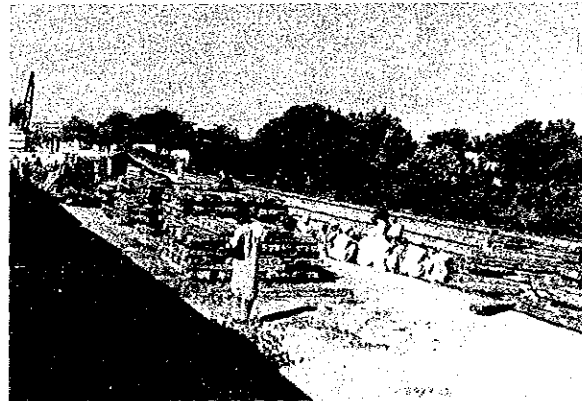
カラチ・CTCセンター



ハイデラバード付近のヤード

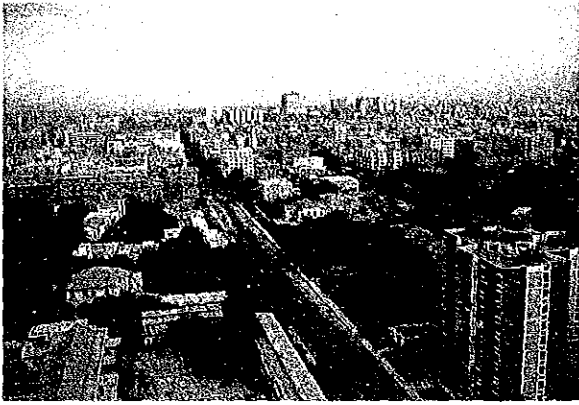


カネワール・ラホール間  
で使用されている鉄枕木



カラチ・ハイデラバード間  
枕木交換風景



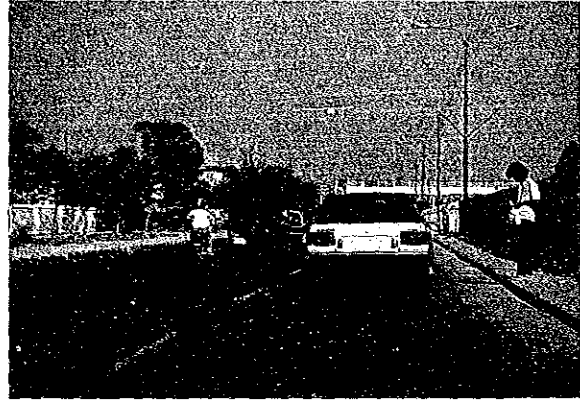


カラチ市内

道 路



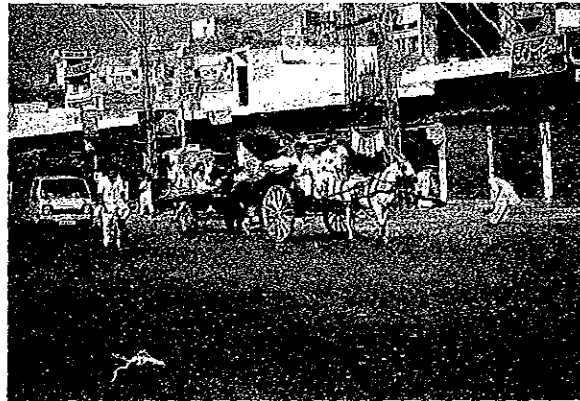
カラチ市街地



カラチ市内幹線

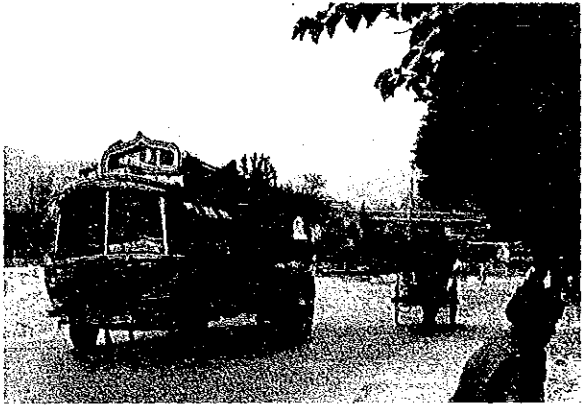


イスラマバード市内・空港線



ラホール市内の混合交通

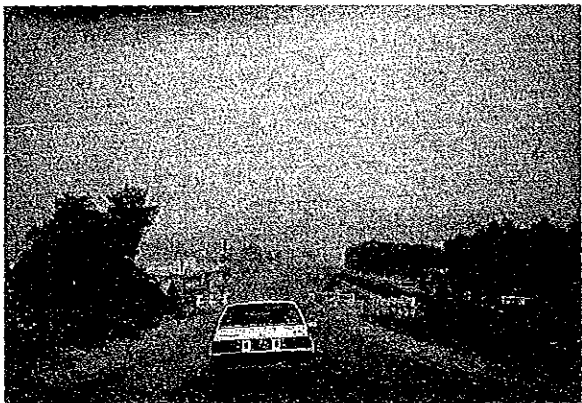




パキスタン特有のスタイルのバス



アボタバード  
北部の山岳道路



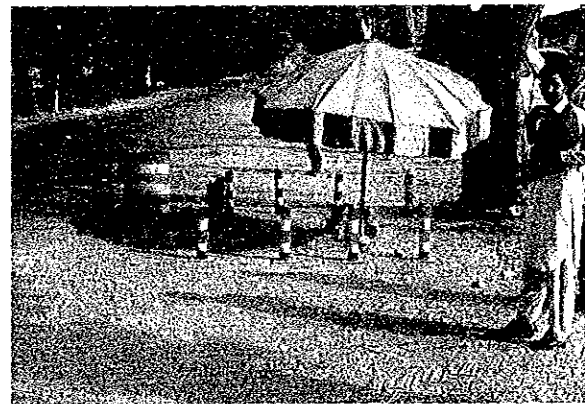
イスラマバード・ペシャワール間  
(5号線)



イスラマバード・アボタバード間  
(55号線)



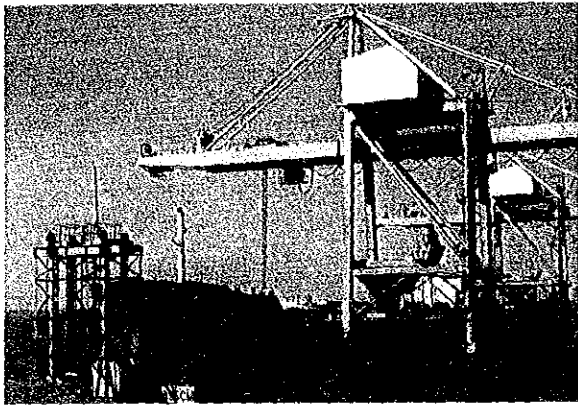
ペシャワール市街地



交通量調査風景



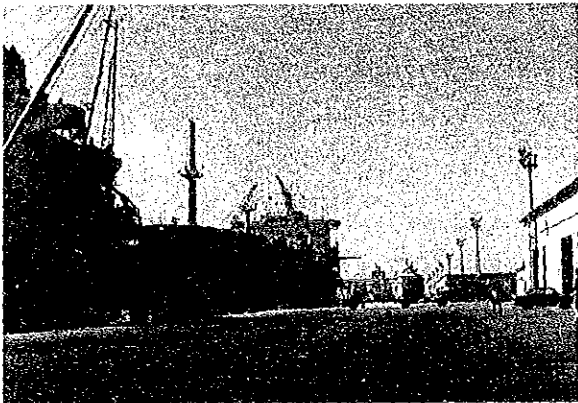




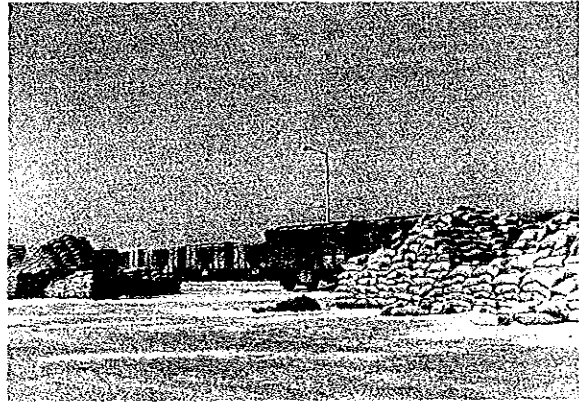
石炭、鉄鉱石棧橋

港 湾

{カシム港}



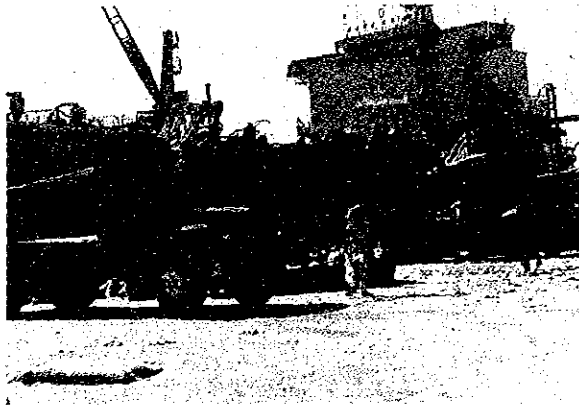
多目的岸壁



小麦の貨車積風景

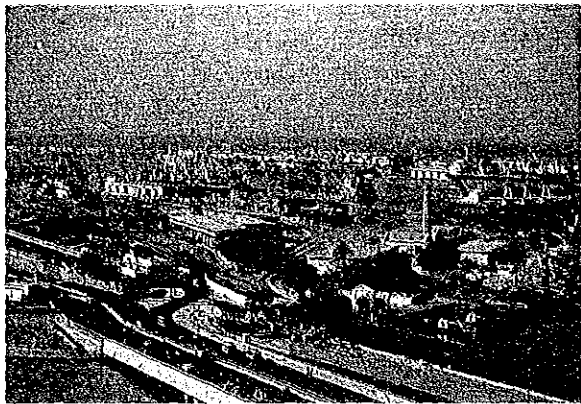


銑鉄の野積み

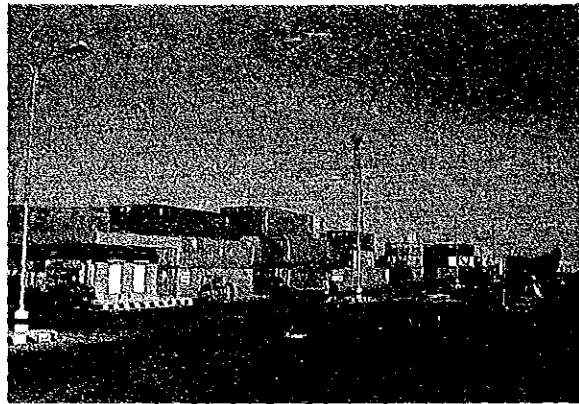


輸入小麦の袋積風景

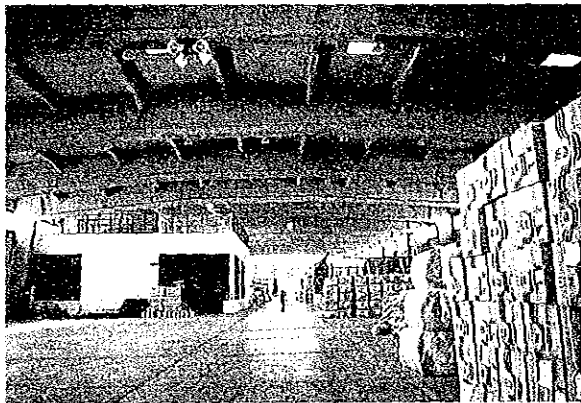




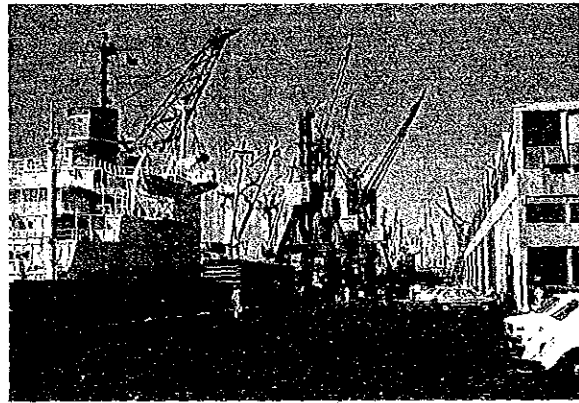
全 景



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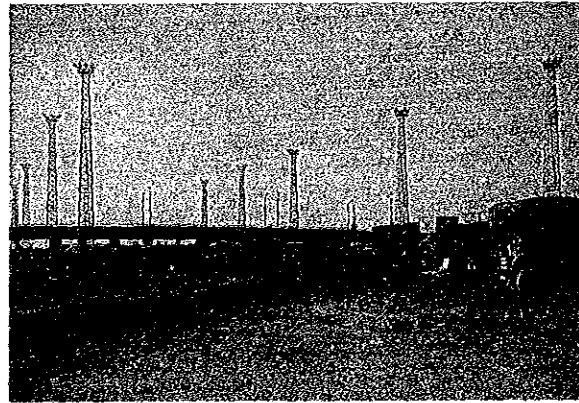
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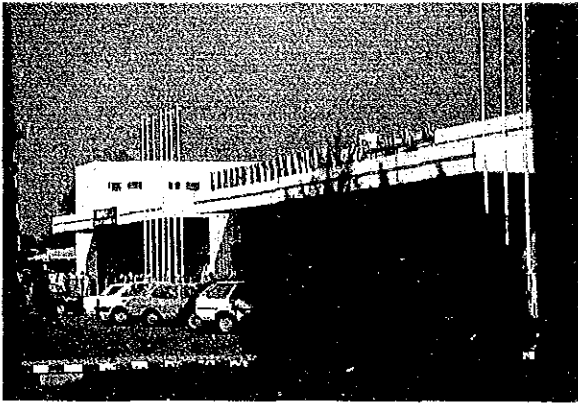


石油棧橋



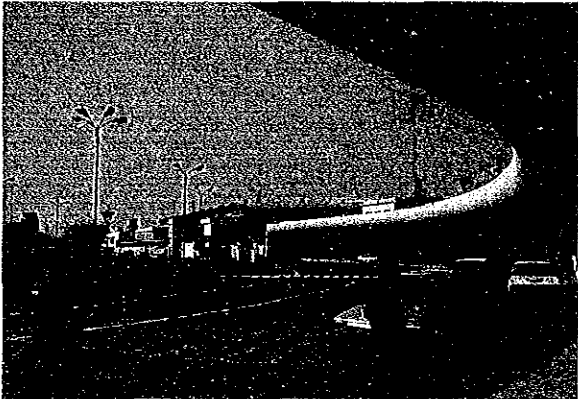
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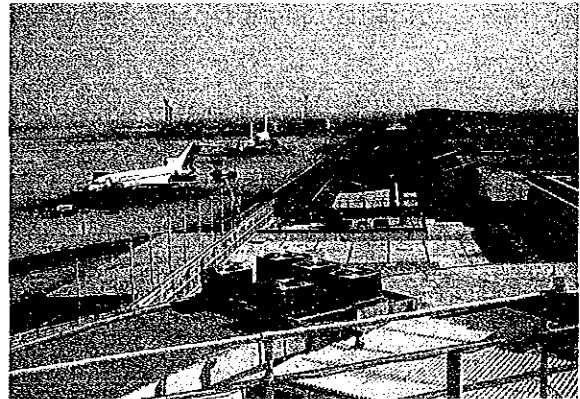


ラホール空港ターミナルビル

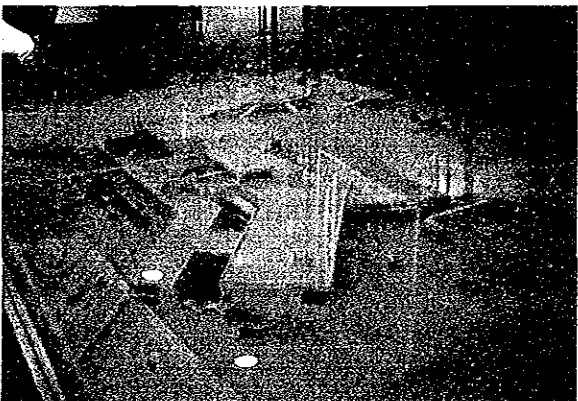
空 港



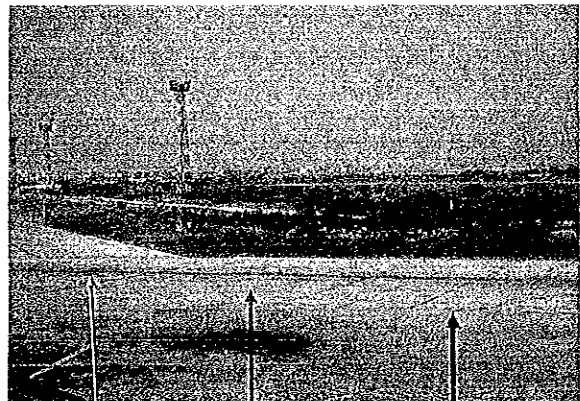
カラチ空港ターミナルビル



カラチ空港 エプロン



カラチ空港 拡張計画の模型



カラチ空港 滑走路





JICA