

PUBLIC

INTER-AMERICAN DEVELOPMENT BANK DOCUMENT

DOMINICAN REPUBLIC

TRANSPORT SYSTEM IMPROVEMENT

(TC8004195)

PLAN OF OPERATIONS

**PROGRAM FOR THE IMPROVEMENT OF THE URBAN AND INTER-URBAN
TRANSPORTATION SERVICE**

MARCH 1981

ECONOMIC AND SOCIAL DEVELOPMENT DEPARTMENT

TECHNICAL COOPERATION SUBDEPARTMENT

TECHNICAL COOPERATION DIVISION II

PLAN OF OPERATIONS

TC-80-04-19-5

DOMINICAN REPUBLIC. Program for the Improvement of the Urban
and Inter-Urban Transportation Service

I. REQUEST

- 1.01 Date of the Request: February 7, 1980.
- 1.02 Requesting Institution: Oficina Nacional de Transporte Terrestre.
- 1.03 Total Cost of the Operation: The equivalent of US\$826,700.
- 1.04 Total Amount to be Financed by the Bank: The equivalent of US\$550,000.
- 1.05 Proposed Fund: Fund for Special Operations.
- 1.06 Type of Financing: Nonreimbursable.
- 1.07 Executing Agency: Oficina Nacional de Transporte Terrestre (ONATRATE).
- 1.08 Priority: The Secretaría Técnica de la Presidencia de la República gave the request presented by ONATRATE the highest priority, through document 0433 of February 7, 1980. This request was presented to the Bank by the Central Bank of the Dominican Republic on February 13, 1980.
- 1.09 This project is part of the Bank's Technical Cooperation Program for 1981.

II. BACKGROUND

The Project

- 2.01 In July of 1978, the Transportation Study of the Dominican Republic was presented to governmental authorities. This study financed through Technical Cooperation ATN/CD(PP)-1378-DR, was prepared with the collaboration of Delcanda International Ltd.

- 2.02 The Study identified the requirement of the sector and includes recommendations for improving the efficiency of the different subsectors.
- 2.03 Among the measures related to the improvement and the reorganization of the road subsector, the following have already been implemented by the Secretaría del Estado de Obras Públicas y Comunicaciones (SEOPC):
- (a) Creation of an Administrative Subdepartment.
 - (b) Upgrading to the Undersecretariat level, the activities related to programming and planning.
 - (c) The elimination of the five Undersecretariats based in the interior of the country.
 - (d) Establishment of a formal link between the Division of Docks and Bridges with the Secretariat.
 - (e) Creation of the Department of Norms, Guidelines and Systems, and upgrading the functions of the Office of Organization and Methods.
 - (f) Increasing by an average of 30% the salaries of SEOPC personnel beginning in June of 1980.
 - (g) Creation of the Auditor and Comptrollers Office for the execution of internal audits on a regular basis.
- 2.04 In relation to the urban and inter-urban transport system, Volume I (Executive Summary of the Study), underlines the urgency to carry out an analysis of the organization and planning aspects of the urban and inter-urban transport sector, as well as and the implementation of these recommendations with the collaboration of external advisors. (Sections V-9 to V-11A, of Volume I).
- 2.05 In the context of the recommendation urging the Government to direct its efforts to the regulation, control and coordination of the public transport sector, the Government of the Dominican Republic established the Oficina Nacional de Transporte Terrestre of the Presidency of the Republic through Decree 1260 of October 17, 1979. This Office has among others, the responsibility for coordinating and improving the public transportation services at the urban and inter-urban levels. ONATRATE has, since its creation carried, out the collection and analysis of basic information on the transportation system. The technical cooperation request under consideration arose from this effort and has as its aim the improvement of the urban and inter-urban services and the institutional strengthening of ONATRATE. 1/

1/ It should be noted that in the preparation of this request ONATRATE used resources from the Bank's Preinvestment Fund.

Of the Executing Agency

2.06 The Oficina Nacional de Transporte Terrestre (ONATRATE) is a dependency of the Presidency of the Republic was created through the decree mentioned above with the following functions:

- (a) Carry out a short-run detailed evaluation of the existing transportation system of the country.
- (b) Set-up of a route system for urban transportation in the main cities of the country.
- (c) Determine the quantity of vehicles needed for the transportation system in order to assure sufficient coverage and efficient utilization of resources.
- (d) Determine the quantities and types of spare parts needed for the vehicles as well as the maintenance facilities.
- (e) Identify the optimum locations in the principal cities in the country for the construction of such terminal facilities as may be required.
- (f) Recommend to the Executive Branch measures that may be needed to prevent increases in the prices of the urban and inter-urban transportation services.
- (g) Carry out such other functions pertinent to the attainment of its objectives and goals.

2.07 ONATRATE's organizational structure includes six Departments, Directors Office and Dependencies for Legal, Auditing and Education. The Departments are: Administrative, Programming, Financial, Technical, Operations and Registry and Supervision of Routes. (See Organizational Chart - Annex I)

A description of the functions of the departments and dependencies is included as Annex II.

2.08 Its organizational chart includes 370 positions in the following categories: professionals, high and mid-level technicians and laborers. Presently it is staffed by a total of 270 at the various levels. On the other hand, the Decree establishing ONATRATE authorizes it to utilize the services of all other departments which are necessary for attaining its objectives.

2.09 ONATRATE's annual budget is a RD\$1,625,640. Its resources are assigned by the National Government.

III. OBJECTIVES

- 3.01 The objectives of the project are: (1) establish the basis for the execution of a Program for the improvement of the urban and inter-urban transportation service through the evaluation and definition of the transportation alternatives, and (2) contribute to the institutional strengthening of ONATRATE through the technical formation of its staff in the management and organization of the Urban and Inter-Urban Transportation System.

IV. DESCRIPCION

- 4.01 The Project would consist in the analysis of the current situation of the urban and inter-urban transportation system and of the alternatives available for its improvement and in the implementation of a comprehensive program of planning, design, organization and administration of an improved urban and inter-urban transportation service. As a result the Dominican Republic should have at its disposal an efficient transportation service ably management by ONATRATE's personnel.
- 4.02 The operation would be carried in two stages. The activities to be carried out would be aimed principally at improving the transportation services in Santo Domingo, Santiago de los Caballeros and to other cities requiring urban or interurban transport.
- 4.03 Activities of the First Stage. Duration: 7 months
- (a) Evaluation of the transportation alternatives for the urban and inter-urban sectors, their costs and benefits with the purpose of selecting the most suitable alternative for the Dominican Republic on the basis of the elaboration of the dynamic model for Santo Domingo and other regions, and taking into account particularly the foreign exchange impact of the different alternatives. The recommendation of the selected alternative should include proposals regarding the vehicle-mix, the infrastructure requirements and the estimated investment costs.
 - (b) Formulation of recommendations regarding short-and medium-term actions aimed at improving the efficiency of the existing transportation system:
 - (i) Organization, activities and functions of ONATRATE in relation with other departments of the Government giving particular emphasis to: (a) the objectives of the national land transportation system; (b) regulations and licensing activities; (c) procedures and operational responsibilities; (d) decrees, norms and laws that may be required.

- (ii) Internal organization of ONATRATE in relation to the agencies operating the vehicles with emphasis on: (a) the operating structure, assignment of responsibilities according to high-level management, departments and divisions; (b) personnel recruiting systems, personnel policies regarding contracts, salaries, labor benefits; and (c) the training of administrative, operating and maintenance personnel, and (d) preparation of the corresponding manuals.
- (iii) Measures related to the operational efficiency of the system such as: route and itinerary improvements, assignment of vehicles, fuel utilization, traffic patterns, etc.
- (c) Implementation of short-term measures tending to improve on an immediate basis the structure and efficiency of the system.
- (d) Review and evaluation by the Government of the Dominican Republic of the recommendations related to the implementation of the proposed transportation alternatives and the corresponding work plan.

4.04 Second Stage Activities. Duration: 8 months

On the basis of the evaluation carried out in the first stage, the new transportation system would be planned. These activities would include the new route structure, vehicle mix, fares, and the determining the scope of the infrastructure requirements. Activities related to the administrative improvement would also be carried out:

- (a) Planning and design of urban and inter-urban routes.
 - (i) Establishment of routes and itineraries in order to improve in the medium-run the quality of the services, fuel utilization and the availability of vehicles and personnel.
 - (ii) Implementation of measures for improving the efficiency of the buses in service such as traffic lights, parking areas and garages, vehicle and pedestrian traffic zones, etc.
- (b) Planning and determining the size of terminals. In relation to the inter-urban terminals Santo Domingo as well as other provincial capitals should be taken into account.
- (c) Analysis and recommendations regarding dimensions, capacity and turnaround capability of the vehicles.
- (d) Estimates of the scope of the facilities for garages and maintenance, including basic architectural guidelines and circulation.
- (e) Continuation of the implementation of the measures related to the improvement of ONATRATE's administrative structure.

4.05 It is estimated that 81 expert/months would be required in the following capacities: 1/

	<u>MONTHS</u>	
	<u>First Stage</u>	<u>Second Stage</u>
Project Manager experience in Organization and Policy	7	8
<u>Experts for institutional strengthening activities</u>		
Experts in Administration and Finance	6	9
Experts in the Operation of Bus Systems	3	5
<u>Activities related to the evaluation and the planning of new system</u>		
Transport economists	12	7
Transport engineer	5	-
Planning of transport infrastructure	-	6
Experts in the maintenance of vehicles and in traffic operations	3	9

4.06 The Program would be carried out with the collaboration a consulting firm which would perform the analysis and recommendations outlined in sections 4.03 and 4.04 and which would advice on these same matters the managerial and professional staff of ONATRATE. 2/ The consulting firm should be hired within six months after the signing of the Technical Cooperation Agreement.

4.07 With the purpose of complementing the advisory and in-service training activities of the consulting firm ONATRATE's staff would also receive formal training in various areas of specialization. The contract between ONATRATE and the consulting firm should specify the number and type of courses and/or seminars that are to be carried out as well as the teaching work load of each expert.

1/ Included as Annex III of the Plan of Operations are the terms of reference for the consulting firm.

2/ The beneficiary has indicated that, should this operation be approved, it would continue the services of Delcanda International. This procedure is within the guidelines for the contracting of consulting services in operations financed by the Bank.

- 4.08 The first stage of the project should be carried out in a period of more or less more than 7 months. During the first 4 months the consulting firm would evaluate the transportation alternatives and elaborate the corresponding recommendations as well as propose the short- and medium-term policies for improving the administrative structure and overall efficiency of the system. During the following 3 months the short-term measures would be implemented and the authorities of the Dominican Republic Government would evaluate the proposed alternative in consultation with the administration of the Bank. The second stage would have a duration of 8 months and it would begin once the Government of the Dominican Republic indicated its agreement.
- 4.09 The experts to be contracted with the Bank's contribution will collaborate with the personnel that ONATRATE will contract and/or assign for the performance of counterpart functions which has been estimated at 240 man/months in the following capacities.

	<u>Months</u>
1 Public Transportation Manager	15
1 Transport Manager	15
1 Maintenance Manager	15
1 Chief Accountant	15
1 Office Manager	15
1 Traffic Engineer	15
1 Land Use Planner	15
1 Attorney	15
8 Mid-level Professionals	<u>120</u>
TOTAL	240

- 4.10 The Bank's contribution will finance the following items: the fees, overhead and air tickets of the consulting firm. The contribution of the Government of the Dominican Republic would cover the per diem expenses of the firm's personnel as well as the administrative costs involved in the execution of the program. ONATRATE would also assign and/or contract the staff indicated above.

V. JUSTIFICATION

- 5.01 The most usual mode of public transportation in the Dominican Republic for urban and inter-urban purposes is the automobile. There are 13,000 automobiles and 1900 buses and minibuses providing inter-urban public transport services throughout the country. In Santo Domingo there are 280 buses and approximately 7,600 automobiles that serve approximately 500,000 passengers daily. Of the 7,600 automobiles providing transport, only half is used every day, as a result of a scheduled system designed to ease the traffic flow in the city. The city of Santiago de los Caballeros is served by 1,100 automobiles, also on a every-other-day schedule, which carry approximately 80,000 passengers per day.

- 5.02 The existing transportation services are regulated by a large number of independent agencies and are not well coordinated in-so-far as it relates to routes and itineraries.
- 5.03 The most serious consequence of the existing transportation system is the very large amount of fuel consumption of the vehicles in use which has a very negative repercussion on the economy of the Dominican Republic.
- 5.04 In effect, the country is using approximately 50% of its annual foreign exchange earnings for the import of petroleum products. In 1980 the total petroleum imports were of the order of US\$550 million while the total exports came to approximately US\$1,125 millions.
- 5.05 The automobiles used for urban and inter-urban transportation consume four times more fuel per passenger/kilometer than the buses. According to ONATRATE the 8,700 automobile providing transportation in Santo Domingo and Santiago consumed approximately 19 million gallons per year.
- 5.06 The definition and establishment of a new transportation system on the basis of more efficient vehicle and fuel use should lead to substantial energy savings and to the freeing for other purposes of a significant amount of foreign exchange.
- 5.07 ONATRATE has already taken action to improve the public transport system. The Government has been engaged in negotiations for the purchase of new mini-buses of which are more than 150 in use and has established several new routes. However, the Government does not have available the capacity for preparing a study for the complete reorganization for this urban and inter-urban system and for the implementation of the recommendations of such a study. This would require the participation international experts in order to accompany the different stages of the project and at the same time provide in-service training of the technical personnel of ONATRATE.

VI. BUDGET

- 6.01 The total cost of the proposed operation is in the equivalent of US\$826,700. The Bank's contribution would come to a total of US\$550,000. The local counterpart would be equivalent to US\$276,700. A detailed budget follows:

		(Dollars) Dominican Republic	
	Bank		TOTAL
1. <u>Consulting firm</u>			
1.1 Fees	501,000	75,000	576,000
2. <u>Local personnel</u>			
2.1 Fees	-	70,000	70,000
6. <u>Support expenditures</u>			
6.3 Equipment	-	46,600	46,600
6.4 Materials	-	12,000	12,000
6.6 Support personnel	-	12,000	12,000
6.7 Publications	-	25,000	25,000
98. Contingencies	49,000	36,100	85,100
TOTAL	550,000	276,700	826,700
	=====	=====	=====

NOTE: Included as Annex IV is a breakdown of this budget.

6.02 In the case that the total cost of the operation were to exceed that outline in the paragraph above, the beneficiary would provide the additional funds required for its completion.

VII. FUND TO WHICH THE RESOURCES ARE CHARGEABLE

7.01 The Bank's contribution up to US\$550,000 would be charged to the net income of the Fund for Special Operations on a nonreimbursable basis.

VIII. DISBURSEMENT

8.01 The disbursements would be made within 30 months of the signing of the Technical Cooperation Agreement and, insofar as the Beneficiary justifies with the proper documentation the expenditures chargeable to the Bank's contribution.

8.02 At the request of the Beneficiary the Bank may set up a revolving fund for up to US\$75,000. The Bank may replenish the revolving fund in whole or in part at the request of the Beneficiary once the resources have been partially or entirely utilized.

- 8.03 For the replenishment of the revolving fund the Beneficiary must submit to the consideration of the Bank detailed accounts regarding the use of the funds previously disbursed.
- 8.04 The establishment and replenishment of the revolving fund would be considered as disbursements for the purposes of the Agreement to be signed with the Beneficiary.
- 8.05 The Technical Cooperation Agreement will establish that the contract signed with the consulting firm should specify the withholding of 10% in order to ensure presentation of a final report to the satisfaction of the Beneficiary and the Bank.
- 8.06 The local contribution which has been estimated at the equivalent of US\$276,700 would be disbursed in the period established in paragraph 8.01 and simultaneously with the Bank's disbursement.

IX. REPORTS

- 9.01 The Technical Cooperation Agreement should specify the presentation to the Bank by the Consulting Firm with the Agreement of ONATRATE of the following reports:
 - (a) Within 30 days of the initiation of the operation a report including the work plan, definitive terms of reference of the experts the training plan for ONATRATE's personnel.
 - (b) Within 4 months of the initiation of the operation a report including the transportation alternatives evaluated, the recommendations regarding a proposed alternative and the institutional short and medium-term measures to be implemented with the purpose of improving the administration and efficiency of the system.
 - (c) Progress reports at 7 and 10 months after the initiation of the operation.
 - (d) A final report giving a detail of the results of the operation accompanied by a 500-word summary of same.
- 9.02 The Technical Cooperation Agreement shall also require a final evaluation report of the operation, expressly stating the performance achieved with respect to the project objectives, to be submitted within 60 days of the presentation of the final report.
- 9.03 The Technical Cooperation Agreement shall also establish the presentation by the Beneficiary within a period of 60 days from the first anniversary of the initiation of the operation and of the last disbursement of financial reports detailing the expenditures charged to the Bank's contribution and to the local contribution approved by auditors satisfactory to the Bank.

X. SUPERVISION

- 10.01 The supervision of the work to be carried out would be in the first instance the responsibility of the Beneficiary. Nevertheless, the Technical Cooperation Agreement shall specify that the Bank may exercise whatever supervision it may deem necessary through its representation in the Dominican Republic and/or by the responsible units at Headquarters.

XI. AGREEMENT

- 11.01 An agreement between the beneficiary and the Bank shall be entered into within 30 days of the approval of this plan of operations.

XII. EVALUATION CRITERIA

- 12.01 The evaluation of this operation will be carried out on the basis of the fulfillment of the objectives described in Chapter III of the reports called for in paragraph 9.01 of this plan of operations. The quality of the work performed during the execution of the operation will also be taken into account.

XIII. RESPONSIBILITY IN THE BANK

- 13.01 The Economic and Social Development Department through the Technical Cooperation Subdepartment, Division 2 shall have the basic responsibility for this operation. The Division of Infrastructure of the Project Analysis Department shall have technical responsibility.

PROPOSED RESOLUTION

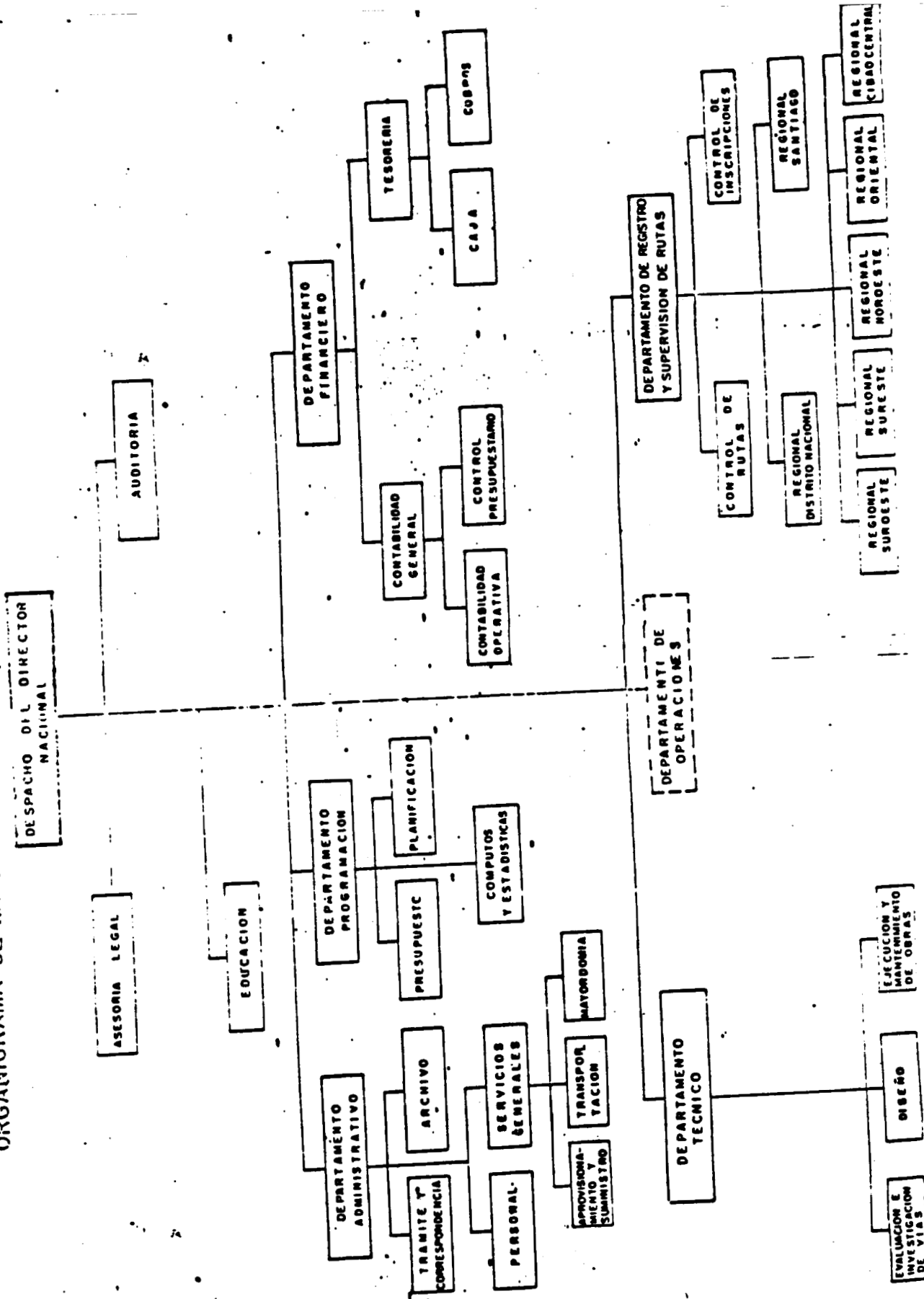
**DOMINICAN REPUBLIC. NONREIMBURSABLE TECHNICAL COOPERATION FOR
IMPROVING THE URBAN AND INTER-URBAN
TRANSPORTATION SYSTEM**

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such agreements as may be necessary and to adopt such other measures as may be pertinent for the execution of the plan of operations referred to in Document AT-549 with respect to technical cooperation with the Government of the Dominican Republic for improving the urban and inter-urban transportation system.
2. That up to the sum of US\$550,000 or its equivalent, is authorized for the purposes of this resolution, chargeable to the net income of the Fund for Special Operations.
3. That the above-mentioned sum is to be provided on a nonreimbursable basis.

ORGANIGRAMA DE LA OFICINA NACIONAL DE TRANSPORTE TERRESTRE



DEPARTAMENTO ADMINISTRATIVO:

El Departamento Administrativo es una unidad de apoyo auxiliar de la Oficina Nacional de Transporte Terrestre para la gestión de las operaciones administrativas que se desprenden de sus actividades y sus funciones son:

- a) Dirigir, coordinar y supervisar el trabajo que realiza el personal a su cargo.
- b) Poner en práctica métodos y procedimientos de trabajo de índole administrativa.
- c) Supervisar el control de los Equipos y Material gastable, estudiando las solicitudes de las diferentes unidades de la institución.
- d) Tramitar ante la unidad de personal todo lo concerniente a movimientos, licencias, permisos y vacaciones del personal.
- e) Disponer de la asignación de vehículos, así como del suministro de combustible al personal de la institución.
- f) Registrar, distribuir y numerar la correspondencia de la institución.
- g) Supervisar la organización de los archivos de la institución y sus dependencias.

Para llevar a cabo estas funciones, el Departamento Administrativo cuenta con las secciones de:

- Trámite de correspondencia
- Archivo
- Personal
- Servicios Generales de la cual dependen las unidades de: Aprovechamiento y Suministro, Transportación y Mayordomía.

DEPARTAMENTO DE PROGRAMACION

Corresponde a este Departamento:

- a) Planificar el sistema operacional de las distintas rutas, tanto en lo que concierne a las frecuencias dentro de los distintos periodos, número de autobuses a usar y al establecimiento de los distintos horarios de salida.
- b) Realizar estudios sobre las posibles fuentes de financiamiento para la ejecución de cada programa específico.
- c) Elaborar reportes periódicos, acompañados de expresiones gráficas, de la situación general del transporte, principalmente en lo que se refiere a número de buses en servicio, frecuencia, cantidad de pasajeros transportados por kilómetros, etc.
- d) Mantener un archivo al día del resultado de la operación de cada ruta, en comparación con los criterios y las normas establecidas por la unidad de Planificación.

Bajo su dependencia están las secciones de:

- Coordinación Financiera
- Planificación
- Cómputos y Estadísticas
- Control de Rutas.

DEPARTAMENTO FINANCIERO

Este Departamento tendrá a su cargo todo lo relativo a las finanzas de la institución y será responsable de la fiscalización económica del sistema. Tendrá, entre otras, como funciones principales las siguientes:

- a) Llevar el control presupuestario sobre el fondo de operaciones de gastos, revisando imputaciones en función de capítulos, partidas y sub-partidas.
- b) Elaborar anualmente el anteproyecto de presupuesto de ingresos y gastos.
- c) Coordinar la distribución de las asignaciones presupuestarias por partidas.

- d) Llevar el control del gasto presupuestario de las unidades de la organización en relación a pagos efectuados por facturas, recibos, contratos de servicios, de acuerdo al objeto que correspondía.
- e) Llevar el control contable de todas las operaciones de la institución.
- f) Controlar los ingresos y egresos correspondientes a las operaciones comerciales de la oficina y a las recaudaciones legales que le correspondan.

Cuenta para llevar a cabo estas funciones con las secciones de:

- Contabilidad Operativa
- Control Presupuestario
- Tesorería de la cual dependen:
 - Caja
 - Cobros.

DEPARTAMENTO TECNICO

Son funciones del Departamento Técnico:

- a) Realizar estudio de evaluación sobre el actual sistema de transporte.
- b) Diseñar métodos de control y chequeo para el servicio de transporte terrestre.
- c) Establecer las especificaciones relativas a los tipos de vehículos que realizarán los distintos servicios de transporte de pasajeros a nivel nacional.
- d) Elaborar los planos y dibujos relacionados con las distintas rutas del transporte, así como los de cualquier construcción que sea necesario realizar para el mejor desenvolvimiento del servicio en todo el país.
- e) Organizar y dirigir todo lo concerniente a concursos de construcción y/o diseños que sean celebrados dentro de las actividades del transporte nacional.
- f) Dar mantenimiento a las obras existentes tanto en lo que se refiere a decoración como a servicios.

- g) Planificar el sistema operacional de cada vehículo para establecer su chequeo mecánico, reparaciones y mantenimiento.

DEPARTAMENTO REGISTRO Y SUPERVISION DE RUTAS

Son funciones de este departamento:

- a) Velar por el fiel cumplimiento de todas las disposiciones relacionadas con el transporte de pasajeros a nivel nacional principalmente en lo que respecta a los horarios de salidas, frecuencias, higiene, tarifas, etc.
- b) Inspeccionar y controlar la operación de cada ruta urbana e interurbana.
- c) Supervisar el funcionamiento de las unidades regionales, las cuales estarán ubicadas en sitios estratégicos del país.
- d) Efectuar el registro y control de los carros inscritos en el Transporte Urbano y todo lo relacionado con este medio de transporte.

Esta institución cuenta además con otros niveles de apoyo tales como:

ASESORIA LEGAL

- a) Emitir opinión sobre consultas de tipo legal que les sean formuladas.
- b) Estudiar, revisar y tramitar documentos y expedientes de tipo legal que les sean encomendados.
- c) Estudiar y redactar toda clase de documentos tales como: Proyectos y Modificaciones de Leyes, Decretos y Resoluciones.

AUDITORIA

- a) Revisar e implantar sistemas de contabilidad y controles administrativos.
- b) Examinar libros de contabilidad, verificando la exactitud de los asientos.
- c) Revisar comprobantes de ejecución presupuestarias.
- d) Revisar conformar los egresos, estados de cuenta y órdenes de compras del organismo.

- e) Elaborar informes sobre la auditoría practicada a la institución.

EDUCACION

Esta unidad será responsable de la capacitación de los choferes, mecánicos y del personal de la oficina que requiera una tecnificación media.

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ANNEX III

TERMS OF REFERENCE

1. The study as outlined in chapter 4 of the plan of operations will be carried out in two stages. Each stage would include activities related to the evaluation and planning of the new urban and inter-urban transportation system, and for the institutional strengthening of ONATRATE.
2. Activities related to the evaluation and planning of the new system:

First stage

- I. The main objective of this part of the study is to determine the best alternative for urban and inter-urban public transportation. The alternatives are to include continuation of the present combination of transport modes (cars and buses), government policies (e.g. tariff rates and subsidies), traffic rules, regulations and other determinants on traffic flow (location of traffic signals, speed limits, etc.), public transportation routes and various infrastructure and facilities (e.g. maintenance for public vehicles). The present system will be compared with a number of alternatives, developed by incorporating potential improvements in individual components of the existing system. The basis for comparison is economic benefit/cost analysis, taking special care to price fuel, imported vehicles and other costs requiring foreign exchange at their real economic value. Similarly, all labor should be valued at its opportunity cost. The approach to economic pricing should be that developed in the national accounting parameters study sponsored by the IDB and the Dominican Republic.
- II. The first requirement for the study is to evaluate the existing supply and demand for urban and inter-urban transportation, and to project future demand. (The urban areas are principally metropolitan Santo Domingo, and Santiago while the inter-urban routes are basically those serving Santiago, Santo Domingo and other urban centers in the provinces). The evaluation of supply and demand should be based upon several types of surveys, some of which may already be available. These surveys are outlined below.

A. Sample household survey

The sample household survey is to obtain the basic data on socio-economic and trip-making characteristics of households within pre-defined traffic zones.

This survey is the most important data source for establishing the origin-destination matrices for passenger transport (all trips, single modes, etc.). The following type of data should be collected:

- Site of household
- Vehicle ownership
- Type of occupation and location of work, school, etc.
- Household income
- 24-hour trip record
 - origin-destination
 - hour of day
 - purpose
 - mode
- Others depending on availability of such data from other sources.

B. Traffic surveys

The traffic surveys include those to establish the origins and destinations of vehicles using the important roads leading to and from the center city. In addition, traffic counts are needed of sufficient duration to identify traffic variations by time of day and by day of the week. Other studies are required to provide road travel time measurements under various conditions.

C. Road inventory and capacity survey

An inventory of all traffic-significant roads within the study area should be compiled. The inventory will contain such items as carriageway and pavement width, type of pavement, condition of pavement, road markings, parking controls, frontage set-back of buildings from the road, road gradient, horizontal alignment, layout of intersections, traffic signals, turning restrictions, bus stops and pedestrian controls.

D. Public transportation survey (buses and conchos).

This involves the tabulation of information on routes, vehicles fleets, fare structures, maintenance and administrative facilities. Additional information is on occupancy rates of different times for each route, characteristics of riders, etc.

E. Projection of transport demand

Transport demand should be projected for at least 20 years, based upon such considerations as land-use patterns, population and employment projects and intra-urban migration.

III. With the above information on the existing system, the consultants will define measures for improvement. These will be along the following lines:

A. Direct Investments

Improvements of the transport network will be investigated to accommodate future travel demand. For each mode, the Consultants will consider expanding the existing facilities, constructing new facilities, augmenting and/or changing the composition of the vehicle fleet, improving the physical and operations improvements.

B. Regulatory Measures

The Consultant will enumerate and evaluate available and possible regulatory measures that will have significant effects on the development and operation of the transport system. These may include traffic controls such as one-way streets, parking restrictions, exclusive lanes for public transport, etc.

C. Inductive Measures

Policies intended to induce the transport systems in a certain way will also be investigated by the Consultants. These may include licensing restrictions on conchos, tax rescheduling of equipment, etc.

IV. For each alternative transport system, and for each significant type of improvement, there will be estimates of investment, operating and maintenance cost requirements (sometimes these would be small or nonexistent, as for changes in traffic controls). The positive benefits of the alternatives will be estimated mainly on the basis of:

- reduced vehicle operating costs
- reduced maintenance costs
- reduced management costs
- reduced travel time
- reduced accident rates
- reduced congestion (basically for private vehicles)

Some negative benefits (increased costs) may be induced under some alternatives through such results as schedule delays and consolidation of routes.

The comparison of alternatives will be based upon the present value of net economic benefits.

- V. As part of the economic and financial analysis, the consultant will evaluate the existing rate structure for public transportation and recommend a rate schedule consistent with the selected transportation alternative. This should include the quantification of any present or future subsidy in the rate structure.

Second stage

On the basis of the evaluation carried out in the first stage, the new transportation system will be planned. This activities will include the new route structure, the vehicle mix, fares, and determining the scope of the infra-structure requirements.

- I. Planning and design of urban and inter-urban routes. The firm will establish the routes and itineraries needed to improve in the medium term the quality of the bus service, fuel use, and the availability of vehicles and personnel. To this end the firm will carry out the following studies.
- A. A detailed map of the routes served, the type and condition of the roads used and the location of all stops and terminals by type.
 - B. The frequency, period of service, speed and regularity of each bus line.
 - C. Transfer times at major transfer points and waiting times at representative bus stops.
 - D. Distribution of the turn-around time on waiting, stopping to load/unload passengers and driving times (including stop due to road and traffic conditions) for representative bus lines.
 - E. An inventory of the existing bus fleet by make, type, age, capacity, condition, etc.
 - F. Desirable standards for bus transport including walking distances by type of area, frequency by type of area and time of day, period of service by day of the week, maximum number of transfers required and total travel time for various movements, load factors, facilities at stops by importance, etc.
 - G. The development of bus services until 1985 with special emphasis on 1981-82 including routes, frequencies, turn-around times, periods of service, etc. The recommendations shall be based on an evaluation of a number of representative route

systems and service proposals taking into consideration the degree to which each alternative fulfills the desirable standards, the expected number of passengers, the number of buses and the staff required, the estimated costs and revenues, etc.

- H. Ways of reducing the turn-around time of the buses including other bus designs and operating characteristics, change of fare System and method of collection/control, reduced load factors, increased spacing of stops, express services, etc.
- I. The number of buses required by year and the ways to meet the requirements including rehabilitation of broken-down buses, reducing the time buses spend in the workshop, purchase of new buses, etc.
- J. The type(s) of bus(es) which would be best suited to local conditions including road standard, weather, passenger requirements, driving habits, the financial and political situation, etc. Recommendations will be made regarding the buses dimensions, cargo capacity and turning radio.

II. Setting up of methods to improve the system such as, traffic lights, parking garages, pedestrian and vehicle zones, etc.

III. On the basis of the studies outlined in section I above, the firm will plan and determine the scope of the urban and inter-urban terminals. For the purposes of the inter-urban terminals, Santo Domingo and the other provincial capitals should be considered.

IV. The firm will prepare estimates for the parking maintenance and repair facilities including architectural norms, guides for vehicle circulation and for their dispatch, and manning.

3. Activities related to the institutional strengthening of ONATRATE.

The main purpose of this activity is to provide the Dominican Republic with an adequate structure for managing and regulating its public transport system.

First Stage:

The consultants would perform a diagnostic study of ONATRATE's administrative and organizational structure and on that basis make recommendations for its improvement. The aspects to be touched are the following:

- I. Responsibilities in relation to the setting of public transportation policies at the national, urban and inter-urban level, including level and coverage of service, financial involvement of the Government in the subsector through subsidies, etc., the ownership of the means of public transportation, the priorities for the subsector, and the responsibility for regulating and operating public transportation services throughout the country.
- II. Staff organization of ONATRATE.
- III. Management and information systems, including training in administration, accounting, operations management, maintenance management, financial management, security, etc. and the preparation of the corresponding manuals.
- IV. Development of measurements to gauge service performance.
- V. Implementation of the recommendations in relation to: (a) organizational structure; (b) assignment of responsibility according to high level management, departments and divisions and (c) the training of administrative, operating and maintenance personnel.
- VI. Implementation of short-term measures within the area of responsibility of ONATRATE for improving the efficiency of the system such as regulations regarding fuel utilization, traffic patterns, licensing of vehicles and tariffs.

Second Stage:

Continuation of the implementation of the measures related to the improvement of the administrative and policy-making structure of ONATRATE, and of other aspects related to its every day operation in the management of the proposed transportation system such as:

Fleet management, vehicle dispatching, crew scheduling, vehicle maintenance, workshop activities, procurement and store management, collections, processing and presentation of traffic and operating statistics, personnel administration, recruitment and training of staff, accounting and budgeting, etc,

ANNEX IV

BUDGET BREAKDOWN

US DOLLARS

	<u>BANK</u>	<u>DOMINICAN REPUBLIC</u>	<u>TOTAL</u>
1. <u>Consulting Firm</u>			
(a) Fees (81 mos. x US\$2,400)	194,400	-	194,400
(b) Overhead (1-1/2 x US\$194,400)	291,600	-	291,600
(c) Travel (25 tickets x US\$600)	15,000	-	15,000
(d) Per diem	-	75,000	75,000
Subtotal	501,000	75,000	576,000
2. <u>Local Personnel</u>			
2.1 Fees	-	70,000	70,000
Subtotal	-	70,000	70,000
6. <u>Support Costs</u>			
6.3 Equipment:			
Traffic counters	-	10,000	10,000
Vehicules	-	36,600	36,600
6.4 Office supplies	-	12,000	12,000
6.6 Administrative services	-	12,000	12,000
6.7 Publications (Manuals)	-	25,000	25,000
Subtotal	-	95,600	95,600
98. Contingencies	49,000	36,100	85,100
TOTAL	<u>550,000</u>	<u>276,000</u>	<u>826,700</u>

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