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1000 RAILWAY INFRASTRUCTURE AUTHORITY

WS 1100 Present Condition of Network

Supported by local consultants, the railway experts will examine efficiency, technical conditions and standard of the railway systems in Armenia, Azerbaijan and Georgia, looking for deficiencies which will form the basis for the rehabilitation plan. There should be a differentiation between short-term measures to be taken because of the present extremely low volume of traffic - first and foremost to maintain management and guarantee the transport standards - and medium-term measures which will help to improve the operating processes with an increasing volume of traffic. Furthermore, an outlook on longer-term prospects can be given during which extensive modernisation of railway installations and rolling stock shall be realized.

It is vital to observe all short-term, medium-term and long-term rehabilitation measures so that the requirements of a co-operation between the railways of Armenia, Azerbaijan and Georgia within a joint venture shall be met.

The results of WS 1100 serve as inputs for WS 2200, Investment Plan for the Railway's Infrastructure

WP 1110 *Technical Condition of Track*

Quantitative and qualitative parameters are

- operational length and length of tracks
- structural condition and standard of tracks
- structural condition and standard of stations and signal boxes
- structural condition and standard of railway crossings.

The operational length has to be determined taking into account:

- the gauge of track
- the number of main tracks (single track, multiple track)
- use by freight traffic or passenger traffic and/or jointly by freight and passenger traffic, as well as the length of the electrically operated routes and routes with diesel traction.

For the track work the length of all tracks, the number of point units and possibly the switch heatings are of interest.

For the structural conditions and standards of the track work it will be necessary to indicate the standards and standards of the track formation regarding their design and stability, the conditions and standards of draining, the conditions and standards of the track bed as well as the conditions and standards of the laying of rails, including their fastening. Generally, a description and evaluation of the conditions and standards of the track formation for stations, signal boxes, crossings, additional facilities as loading and unloading facilities, goods sheds and maintenance and storage facilities have to be elaborated.

In a further investigation the possibilities for the maintenance of the structural facilities and the maintenance periods shall be appraised; however, the plan and real condition should be indicated separately.

Each evaluation yields the demands as to the rehabilitation plan, taking into account the various time horizons.

WP 1120 Technical Condition of Bridges

The technical conditions of bridges and tunnels have to be determined for

- railway bridges
- railway tunnels
- road bridges (as far as maintenance will be done by the railway company)
- over-line bridges/subways for pedestrians, especially in station areas.

For these buildings the construction type, age, load capacity and maximum axle load as well as the running speed have to be determined.

Furthermore, duration and conditions of further use will have to be indicated.

Maintenance procedures for bridges and tunnels have to be determined, as have periods needed for investigations on planned condition/real condition which are to be indicated separately.

Each evaluation yields the demands as to the rehabilitation plan, taking into account the various time horizons.

WP 1130 Signalling and Communication

The technical conditions of signalling and communication have to be determined for the

- signalling system
- train control system
- reliability
- internal telephone system
- data transmission system.

For the signalling system, conditions and standards for the stationary facilities in signal boxes and for pointsmen have to be analyzed and appraised, and for those facilities pertinent to the different lines (main and distant signals) which serve for the safety of train movements (including cable-laying).

For the communication system, conditions and standards for the train identification reporting system, train-running control and train control have to be described.

Maintenance procedures and periods (plan / real condition) and the signalling and telecommunication workshops have to be included into the analyses.

Each evaluation yields the demands as to the rehabilitation plan, taking into account the various time horizons.

WP 1140 Power Supply

The technical conditions of the power supply have to be determined for the

- traction network
- power supply
- contact wires.

For the power supply, conditions and standards regarding the energy basis for the traction power works, their location, capacity and kinds of power supply (overhead lines, earth cables) as well as overhead lines across routes and in stations have to be examined and described.

Each evaluation yields the demands as to the rehabilitation plan, taking into account the various time horizons.

WP 1150 Technical Condition of Stations

The technical conditions of the stations have to be determined for

- freight stations
- passenger stations

- shunting yards
- border stations
- intermodal stations.

For the stations, conditions and standards with regard to track development and station premises (e.g. stabling sidings, recessing sidings) have to be examined and their correspondence with the technological state-of-the-art. Stations should be classified and be put into proportion to the volume of traffic.

In completion of WP 1100, maintenance procedures regarding track formation, and station facilities have to be appraised. Of special interest is the condition of station buildings as well as their passenger service facilities.

Each evaluation yields the demands as to the rehabilitation plan, taking into account the various time horizons.

WP 1160 Maintenance Technology for Rolling Stock

The technical conditions of the maintenance technology have to be determined for:

- maintenance of freight waggons
- maintenance of coaches
- maintenance of locomotives.

For this equipment - belonging to the rolling stock - stock figures, structure, age, origin, load capacity / number of seats / tractive effort have to be determined. Of special interest are ownership rights (e.g. private cars of a customer taken over, operating company).

Special attention has to be paid to the possibilities for maintenance and, if need arises, the necessity for new buildings or the rehabilitation of rolling stock. In this connection maintenance shops, maintenance and storage facilities and repair stands have to be recorded and appraised with a view to their condition and equipment.

Each evaluation yields the demands as to the rehabilitation plan, taking into account the various time horizons.

WP 1170 Deficiency Analysis and Rehabilitation Plan

Deficiency analysis and rehabilitation plan will be worked out based on the individual results of WP 1110 to WP 1160.

For each network section the deficiencies have to be listed, appraised, systematised and arranged according to their urgency so that there will be a technologically settled analysis of deficiencies.

This deficiency analysis helps prepare the rehabilitation plan and will serve as a basis for WP 2000, Investment Plan.

WS 1200 Organisational, Legal, and Financing Conditions; Audit

WP 1210 Analysis of Present Organisation

Further to the description of the present state of infrastructure and performances, investigations have to be made as to which organisation will plan, perform, and realise the processes. Subjects of this analysis will be as follows:

- organisational structure, i.e. management and control structures;
- operational structure, i.e. the tasks and their respective assignment;
- staff, in particular: number of personnel, their qualifications and respective authorities;
- relevant co-operation relations, and
- structures for marketing and distribution.

The analysis is based on

- available documents regarding the organisation, and
- interviews with executives of relevant fields.

Results:

The result will be an overall description of the railways' administration in the area that was investigated. This will comprise:

- organisational charts
- spheres of business or scope of duties of the individual organisational units
- lists/tables regarding personnel assignment.

The presentation of results will be more detailed for those findings helping to deduce deficiencies, or potentials for effective and efficient work within the international management of infrastructure that remains to be developed, or within the future Service Centre, resp.

WP 1220 Financial Analysis

The existing financial situation of the three railway administrations and of the Caspian Shipping Company will be taken into account.

Especially will be analysed:

- Present cost accounting system
 - * calculation of actual cost
 - * cost differentiation between passenger and freight transport
 - * cost planning and cost control

- * recent developments in major cost items (such as personnel, material, energy)
- Present expenditures for infrastructure
 - * present calculation for infrastructure
 - * break-up of infrastructure into different sub-sectors (fixed assets)
 - * basis of a realistic accounting system
 - * break-up into fixed and current expenditures
 - * method of payment for infrastructure expenditures (repayment plan, lump sum, prices, etc.)
- Financial cash flow distribution
- Budgetary accounting and realisation
- Revenue structure concerning passenger and freight operation
- Descriptions as to the specific expenses involved (where are expenses recorded and what for?) and as to the truth of such expenses
- Analysis of calculation standards and calculation methods.

Results:

- Actual state of cost accounting system
- Fields of cost accounting
- Structure and size of costs
- Cost recovery on the basis of a realistic accounting system.

WP 1230 Legal and Institutional Organisation

The existing legal and institutional organisation of the three railways concerned will be analysed, taking into account the legal framework report of 1994. There is a close connection with WP 1210.

Government representatives and legislators will be interviewed to ascertain the political will of each individual State concerning the future of its railway, and whether proposals (and which proposals) for a common strategy and a joint venture in the field of railway infrastructure have a chance to be implemented. The need for legislative measures will be defined.

Corresponding proposals will be prepared.

Specific research will concern the

- relationship between the States and the railways;
- ownership of the railway infrastructure;

- management of the railway infrastructure (authority, company, etc.; integrated, separate, etc.);
- definition of railway infrastructure;
- investment mechanism;
- maintenance mechanism;
- possibility (no/yes/who/how) of third parties' access;
- access privileges;
- control mechanism (antitrust, etc.) and arbiter function;
- system of user fees/rates;
- establishment and approval of user fees/rates;
- relationship between railway infrastructure authority/company and user company/companies;
- consideration of stations, platforms, terminals, depot; and access tracks, shunting yards, etc.;
- public service obligations;
- safety control.

Results:

- Description of present situation
- Proposals for future development
- Definition of legislative need.

WP 1240 Deficiency Analysis and Rehabilitation Plan

Comprising:

- Financial evaluation of backlog works (divided into material assets, production technologies, premisses as to time, etc.)
- Preparation of a financing schedule in terms of time as a planning variant (financing need)
- Ascertainment of possible sources for financing and financing institutions
- Analysis of possibilities for possible discounts conditions (premium - extra premium as a punitive measure; rebates, promotion instruments, underwriting of interests by other institutions, etc.)
- Comparison of effectivity indicators and financing

Results:

- Definition of total investment sum for infrastructure revitalisation and development
- Financing and funding proposals
- Investment responsibilities proposal
- System for suitable operating and financial ratios
- Data for cost-effectiveness analysis.

WS 1300 Establishment of International Co-operation

WP 1310 Definition of the Main Aims of Co-operation

A precondition for the realisation of railway transit is the availability of an efficient railway network, and concerted technical and commercial conditions. The later are in part determined by the leaflets of OSShD. Furthermore, it could be assumed that the rules and regulations of RID (instructions) keep being the basis for the technical standards. Here, the relevant provisions have to be assessed and checked whether they comply with international standards.

The necessary investments and their integration in terms of time and system techniques are subject to co-ordination between the railway administrations. As a basis for the investigation it is assumed that the infrastructures of railway and port for the most part remain state-owned. Invitations for tenders will be done jointly on the basis of previously concerted terms of reference.

For the utilisation of the infrastructure a route management will be indispensable. Outline conditions for route charges are to be determined and co-ordinated.

WP 1320 Alternative Forms of Co-operation

Taking into account the outline conditions still to be determined (cf. WP 1230), various forms for a co-operation between the railway administrations have to be investigated and assessed. Within the framework of such investigations, firstly the following forms will be investigated (in co-ordination with local authorities):

- A) Infrastructure Authority (international/regional authority for the development, extension, maintenance, operation, and marketing of the railway network) with equal numbers of activity rates;
- B) like A, but with the participation of the Ministries of Transport;
- C) Creation of 'International Route Management' departments in the three railway administrations, and co-ordination of conditions and of the systems of development, investments, and maintenance. Formulation of legally binding agreements.

Evaluation of the variants, taking into account the respective points of view of the three countries involved. Spot-lighting of potentials for conflicts, and recommendation of the variants to be preferred.

Main activities in this co-operation will be:

- technical uniformisation and standardisation in the following fields: track (e.g. permissible axle loads, speeds, gross trailing loads), bridges, signalling and communication (e.g. distances between sections, block intervals), stations (e.g. useable lengths of tracks)

- organisation and creation of purchase pools for typical railway equipment and spare parts, in order to minimize procurement costs by means of bulk discounts
- creation of joint structures in terms of division of labour for the maintenance of infrastructure
- creation of joint structures for the granting of usufruct of routes
- creation of an organisational unit for technological planning (co-ordination of timetables and train formation, e.g. in order to save expenses by the formation of long-distance trains).

WP 1330 Requirements of International Agreements

Following co-ordination with the railway administrations, on the basis of the assessed, alternative forms (WP 1320) designs for national agreement are drawn up and co-ordinated. Main items of these will be:

- (1) form of organisation,
- (2) financing of organisation,
- (3) financing of investments,
- (4) proceeding during preliminary planning, planning, implementation
- (5) project management for construction traffic
- (6) principles of route charges
- (7) planning of maintenance
- (8) rules and regulations (preparation and co-ordination).

Results:

Designing of international agreements regarding the infrastructure authority.

WP 1340 Border Control and Customs Procedures

A harmonised legislation in the field of border crossing traffic is of major importance for a high qualitative and reliable railway traffic between the countries concerned.

Therefore, the main objective of this work package is to analyse the legal and institutional framework for border crossing traffic and the actual customs legislation, and draw up recommendations for improvements of procedures and legal framework.

The analysis of present situation in this field will cover the following areas:

- legal framework for cross-border traffic in the respective countries both for interregional and international traffic;

- organisation of border control at border stations between these countries as well as on the borders with third countries;
- customs legislation and customs tariffs;
- organisational and institutional framework for customs clearance and control;
- border clearance procedures in railway traffic, including operational issues, customs, safety and sanitary inspections, etc.

The analysis will be carried out separately for passenger traffic and for freight traffic, taking into account possible differences for traffic within the region and international traffic with countries outside the FSU.

Based on the above mentioned analysis weak points are to be defined and recommendations for improvements be drawn up. Possible directions for future improvements might be:

- harmonisation of national legal acts and regulations between the countries concerned, adjustment to international acts and recommendations;
- recommendations for necessary bilateral or multilateral agreements aiming at improvement of border crossing railway traffic;
- improvement of the organisational framework for border clearance activities, for example by agreements on joint border and customs control.

The consultant is fully aware that for these issues the actual political situation and further political trends and developments in the region are of outstanding importance. They therefore will be thoroughly considered when recommendations are drawn up.

2000 BUSINESS STRATEGY INFRASTRUCTURE

WS 2100 Traffic Forecast

WP 2110 Trade Potentials

As one of the main factors for determination of future freight volumes trade patterns in the area will be analysed and a forecast for possible developments over the period of the next 20 years is to be drawn up.

After the breakdown of the former Soviet Union, trade relations of the countries concerned severely changed. While in the past trade flows mainly were the result of centralised allocation and production, now completely new trade patterns are coming up.

Future trade and business prospects will be examined for the following areas, defining changes in geographical and commodity structures:

- internal business relations between the main industrial areas of the three Caucasian republics;
- inter-regional trade between Azerbaijan, Georgia and Armenia;
- exports and imports with other FSU - countries, mainly with Russia and Ukraine;
- foreign trade with countries outside the FSU area, especially with Turkey and Iran;
- trade relations between third countries, creating potential transit flows through the Trans-Caucasian corridor.

The trade forecast will include examination of oncoming developments in main industrial areas, as for example the oil-extracting industry in Azerbaijan, oil refining, mining industry as well as deliveries of machinery and equipment into the area for these growing branches .

WP 2120 Freight Traffic Forecast

Traditional mathematical and statistical methods of traffic forecasts, normally used under West European conditions, are not applicable to prognoses of traffic flows in the present situation in East European countries, mainly because severe structural changes took place in all areas of political, economical, and social life in the reform countries.

Based on our relevant experience of successfully prognosticating traffic flows in various East European countries, the consultant suggests the application of a procedure adjusted to these special conditions. The forecasting method consists of the following main elements:

- analysis of all existing statistical materials and information on the future development of economy, trade, socio-demography, transport, etc. by the consultant;
- elaboration of an own forecast by the consultant, based on the methodology of correlation between main economic indicators like GNP, national income, etc. and the development of foreign trade and freight transport;
- harmonisation with independent forecasts of local bodies / organisations.

As a result, a forecast consisting of three scenarios will be drawn up, figures being available for the years 1994/1995, 2000, 2010 and 2015:

- Scenario I: best case
- Scenario II: medium case
- Scenario III: worst case.

The forecast for railway freight transport will be presented in the form of O/D - matrices separately indicating export, import, transit and domestic traffic for various types of transport (individual waggon load, block trains, etc.).

The breakdown into commodity groups will be done into ten groups according to NST/R, or by adjustment of other available classification to NST/R.

In addition, a forecast for other relevant modes of transport (road, pipeline, sea) will be included.

The traffic forecast will be done in close co-operation with all projects and activities concerning the development of a regional traffic forecasting model.

WP 2130 Passenger Traffic Forecast

According to forecasting methods, the above mentioned difficulties apply to passenger traffic as well as to freight transport.

Therefore, the consultant will use a procedure similar to the method described under WP 2120. The forecast will be based on an analysis and evaluation of the future development of main factors influencing railway passenger traffic as follows:

- political situation, migration processes,
- development of main socio-economic indicators,
- population (number, structure, dislocation etc.),
- economic and trade relations between the countries concerned,
- present situation and prospects of tourism,
- development of individual car ownership.

As a result, a forecast for passenger railway traffic consisting of three scenarios will be drawn up too, figures being available for the years 1994/1995, 2000, 2010 and 2015:

- Scenario I: best case
- Scenario II: medium case
- Scenario III: worst case.

The forecast for railway passenger traffic will be structured as follows:

- passengers leaving the country
- passengers entering the country
- transit passengers
- domestic traffic
- main lines of the transport corridors under consideration.

For passenger transport the situation and future developments of competitive transport modes are also to be assessed.

WS 2200 Investment Plan for the Railway's Infrastructure

The business strategy for the railway's infrastructure has to be prepared for the fields:

- Track
- Freight and Passenger Stations
- Signalling and Communication
- Processing and Transmission of Data
- Maintenance Shop,

using the results of WS 1100.

Furthermore, they will integrate and financially appraise all those measures of the Rehabilitation Plan which in the long run will help to ensure and improve the operating conditions of Armenian, Georgian and Azerbaijan railways, and increase their efficiency by modernisations according to their specific requirements.

The Investment Plan has to be established considering the economic working life and maintenance costs for the railway premises.

Within the Investment Plan the various measures for rehabilitation and modernisation have to be itemised, indicating investments for equipment on the one hand and building measures on the other hand.

The various measures have to be combined in a timetable in a way to provide greatest possible effectivity with a view to their realisation.

When preparing the Investment Plan for the railways in Armenia, Azerbaijan and Georgia, attention should be paid that economically significant divisions of labour and co-operations be included.

WP 2210 Track

Rehabilitation measures as given under WP 1170 will be included, separately indicating investments for equipment and investments for buildings.

The investment plan for the track refers to the following fields:

- land
- railroad
- tunnel (s)
- railway crossings
- railway bridges

- bridges
- superstructure.

Each measure has to be financially evaluated.

WP 2220 Freight and Passenger Stations

Rehabilitation measures as given under WP 1170 will be included, separately indicating investments for equipment and investments for buildings.

The investment plan for freight and passenger stations refers to the following fields:

- superstructure (passenger buildings, interlocking towers, station-master's office, shunting yard, workshop)
- transport-related facilities (platforms, inclines, tracks)
- shunting facilities and track stops.

Each measure has to be financially evaluated.

WP 2230 Signalling and Communication, Data Processing & Transmission

Rehabilitation measures as given under WP 1170 will be included, separately indicating investments for equipment and investments for buildings.

The investment plan for signalling and communication refers to the following fields:

- mechanically operated signalling facilities
- electromechanical signalling facilities
- electric signalling facilities
- central systems for control and co-ordination
- lines for transmission techniques
- telecommunication facilities
- data processors.

Each measure has to be financially evaluated.

WP 2240 Power Supply

Rehabilitation measures as given under WP 1170 will be included, separately indicating investments for equipment and investments for buildings.

The investment plan for power supply refers to the following fields:

- electrical facilities for traction current
- electrical facilities for light and power
- wiring for traction current.

Each measure has to be financially evaluated.

WP 2250 Maintenance Shop

Rehabilitation measures as given under WP 1170 will be included, separately indicating investments for equipment and investments for buildings.

The investment plan for the maintenance shop refers to the following fields:

- facilities for generation and supply of heat, compressed air, liquids, gas
- lifting and winding engines
- machine tools
- measuring and control equipment
- workshop equipment
- tools.

Each measure has to be financially evaluated.

WS 2300 Management

WP 2310 Development of Organisation

This present organisation is a compound of tradition, precedent, and established practice. The main task will be a proposal on how to organise the co-operation between the three railways in the fields of network reconstruction and development.

Approaches:

- management by objectives,
- optimal organisation of processes,
- centralised organisational development under aspects of managerial effectiveness.

The steps are:

- Initial Phase: modern seminars on
 - * leadership abilities,
 - * the increase of self-understanding,
 - * problem-solving,
 - * management of conflicts;
- Creation of Teams
value of team work (team of representatives of different railways)
- Interface Development
interfaces between the different departments and the railway administration(s)
- Designing of an Ideal Strategic Organisational Model
- Implementation of the Model Developed
- Consolidation.

Results:

Recommendations on steps to change the organisation, and on phases of development.

WP 2320 Model for Financing of Infrastructure

The infrastructure has to be rehabilitated according to the required standard of technology. The necessary implementation scheme will require enormous investment sums. Besides the infrastructure as such there will be a necessary shift to mechanised maintenance of fixed structures. There is also a need to improve the quality of manpower resource through changes in the recruitment policy and intensive training.

Priority should be given to investments directed towards improving the productivity of existing assets.

Concerning this investment scheme, there is a variety of interests from the railway organisations, the port authority, and the respective industry.

Therefore, various options as a model for financing of infrastructure will be analysed, such as:

- Public private partnership
- Build Operate Transfer (BOT)
- Build Operate Lease Transfer (BOLT)
- Own-your-track concepts
- Donor participation: national - international
- Going-public concepts.

The above listed models for financing and ownership strategies will be analysed taking into account local conditions. The experience from privatisation of the German Rail Organisation (Deutsche Bundesbahn) will be used as a valuable source of information.

WP 2330 Financing Sources

According to the various interests involved, the various sources for financing the infrastructure investment scheme will be analysed. It is the overall goal to set up a business plan stating the sources and funds over a 10 to 20 years period, outline cash-flow indications, outline balance sheets, profit-and-loss forecasts, indications of possible equity holdings and necessary financing to provide for debt service.

Concerning financing sources, the following organisations, institutions, and industrial enterprises will be evaluated as serious possibilities:

- Government financing agencies
- commercial banks
- international development banks
- national and international donor agencies
- private industry as supplier and/or construction companies
- petrol/oil investment industry
- port authority
- other potential railway users.

Results:

The evaluation results will document the financial arrangements and respective partners involved, taking into account the existing legislation of the three countries involved.

WP 2340 Human Resources Management

Based on the organisational structure developed for international co-operation in the infrastructure management field (WP 2310) the requirements as to personnel will be determined.

These requirements can be classified according to organisational criteria in connection with the management of human resources, like, e.g.:

- availability of personnel;
- responsibilities of personnel (limits to freedom of action);
- organisational structure of "Working Group";
- technical basis for the support of activities, and
- number of personnel,

and according to individual criteria of staff members being of importance for the activities to be performed like, e.g.:

- organisational talent;
- social / communicative abilities;
- leadership qualities, in particular:
 - * project management qualities,
 - * ability to settle conflicts, and
 - * professional competence.

The comparison of these requirements with the actual status (WP 1200) of human resources results in the definition of deficiencies with a view to the objectives of the joint infrastructure management.

A vital point of this process is the creation of long-term, stable structures as to the division of labour for the objective-oriented co-operation between the Republics of Armenia, Azerbaijan, and Georgia on the personnel side, for the joint technological planning, and for the maintenance of infrastructure.

Those measures helping to overcome the deficiencies in the human resources will be compiled in an 'Action Programme', detailed in terms of time and finance. Such measures are:

- special training for management personnel, concerning relevant individual abilities and organisational management;
- special training for specialised personnel, concerning relevant individual abilities;
- training of specialised personnel and management personnel to train others in turn, in order to start a continuous, internal process of principal training and refresher training;
- putting management personnel in a position to recruit (select) personnel.

Special attention shall be paid here both to the training of abilities and the training of methods.

The methodical bases best suited for these training units are, on the one hand, the internationally acknowledged managerial GRID technique, and, on the other hand, modern 'workshops', calling for contributions of their participants.

They do not only guarantee the impartment of knowledge, but at the same time - and very strongly so - that own experience can be integrated and developed in a common work process.

The form in which these measures are presented will be adapted to the different contents and requirements as to:

- duration (one or more days, only once or permanently)
- location (either integrated in the local working sphere or on 'neutral' territory)
- training group (national group or joint group, specific or unspecific selection of participants)
- methods and programme of training.

This work package will be handled assisted by local specialists.

Results:

- Specific requirements as to human resources in the infrastructure management field
- Schedule of measures
- Training of abilities representing the most important factors of success for the international co-operation in the infrastructure management field
- Recommendations as to how the 'infrastructure' strategy, relative to human resources, can best be realized (contribution to WP 3430).

3000 TRANS-CAUCASIAN RAILWAY SERVICE CENTRE

WS 3100 Present Conditions of TCR and Deficiency Analysis

Supported by local consultants, the Transport Experts shall examine the present conditions of TCR within the railway systems of Armenia, Azerbaijan and Georgia in the fields listed below and ascertain any deficiencies which will form the framework for the objectives and strategies to be pursued.

- Freight Transport
- Passenger Transport
- Combined or Multimodal Transport
- Tariffs; User Charges and Revenues.

Both the investigations on the present conditions of TCR and the deficiency analysis have to be carried out with a view to short-term, medium-term, and long-term strategies regarding the co-operation between the railways of Armenia, Azerbaijan and Georgia.

WP 3110 *Freight Transport*

The analysis of the present conditions of freight transport should contain statements on:

- the efficiency of the traffic authorities
- products of freight transport
- traffic performances
- marketing organisation of the products transported
- organisation of production of freight transport
- production engineering of freight transport.

The efficiency of traffic authorities and traffic performances have to be determined in tons and ton-kilometres. Furthermore, traffic performances have to be classified according to the products transported. The investigations on the marketing organisation should also include aspects of distribution and sales organisation. As to the organisation of the production of freight transport, statements about marshalling yards and train formation are indispensable. For the investigation on production engineering of freight transport, quantitative and qualitative analyses of the freight waggon stock, including their availability and general maintenance, have to be rendered. Furthermore, a quantitative and qualitative analysis of the stock of traction vehicles for freight train haulage, their availability and general maintenance should be included.

Each assessment should result in a listing of deficiencies and recommendations as to which objectives and strategies shall serve as input for WP 3210.

WP 3120 Passenger Transport

The analysis of the present conditions of passenger transport should contain statements on:

- the efficiency of the traffic authorities
- products of passenger transport
- traffic performances
- marketing organisation of products of passenger transport
- organisation of production of passenger transport
- production engineering of passenger transport.

The efficiency of traffic authorities and traffic performances have to be determined in passengers and passenger-kilometres. Furthermore, traffic performances have to be classified according to the passengers transported. The investigations on the marketing organisation should also include aspects of distribution and sales organisation. As to the organisation of the production of passenger transport, statements about storing sidings and train formation are indispensable. For the investigation on the production engineering of passenger transport, quantitative and qualitative analyses of the coach stock, including their availability and general maintenance, have to be rendered. Furthermore, a quantitative and qualitative analysis of the stock of traction vehicles for passenger train haulage, their availability and general maintenance, should be included.

Each assessment should result in a listing of deficiencies and recommendations as to which objectives and strategies shall serve as input for WP 3220.

WP 3130 Combined or Multimodal Transport

The analysis of the present conditions of combined or multimodal transport should contain statements on:

- products of the combined or multimodal transport
- traffic performances
- marketing organisation of products of combined or multimodal transport
- organisation of production of combined or multimodal transport
- production engineering of combined or multimodal transport.

An inventory has to be taken of the products of combined or multimodal transport. The performances in combined and multimodal transport have to be determined in tons and ton-kilometres, classified according to the products of combined and multi-

modal transport. The investigations on the marketing organisation should also include questions as to distribution and sales organisation, and existing co-operations with forwarding agents and other traffic authorities. As to the organisation of the production of combined or multimodal transport, statements about terminals, loading organisation and train formation are indispensable. For the investigation of the production engineering of combined and multimodal transport, quantitative and qualitative analyses of the stock of loading units have to be rendered, including statements about their availability and general maintenance. They have to be completed by statements about special waggons available and used.

Each assessment should result in a listing of deficiencies and recommendations as to which objectives and strategies shall serve as input for WP 3230.

WP 3140 Tariffs, User Charges, and Revenues

The objective is to design a tariff/user charges system that would lead to an optimal revenue structure and amount by composing economic and social needs of the users.

The tariff study will firstly be based on the market analysis of WPs 3210 and 3220. These studies will estimate total market demand in the freight and in the passenger sector according to income and price elasticities.

Secondly, it is obvious that the new tariff structures will be elaborated using the existing data on tariffs and revenues.

Thirdly, there will be a review of tariffs/charges in countries with efficient rail transport as well as new approaches that have been developed in the scientific world.

Fourthly, the study will take into account the improvements that will be implemented in the technical areas of improved infrastructure and capacity.

Fifthly, there will be a thorough analysis of competing tariff systems (see WP 3150).

Sixthly, there will be a close look up of all relevant legal and administrative regulations that influence the building up of a tariff system in the passengers and freight transport. In case there will be proposals for modifications of these regulations.

Seventhly, there will be a cost/efficiency estimate for all marketing measures that affect the revenues of the railway service centre.

As the last subpackage an estimate for other income of the railway has to be made. This includes fees, promotion income of service centres. In general these revenues will not contribute essential parts to the income.

Results:

- a tariff structure for passenger transport, subdivided into
 - * international
 - * national
 - * local travel
- a tariff structure for the freight market (probably subdivided into:
 - * international and
 - * national freight transport).

Both tariff systems will be complemented by proposals of special tariffs for special transport corridors and/or transport products.

This structure will lead to revenue tables to be integrated into the financial evaluation of the business plan (WP 3440).

The tariff structure will enable the Trans-Caucasian Railway Centre to be an efficient economic entity which will have enough income to be a valuable part of the international transport system and the social transport requirements of the different nations.

WP 3150 *Conditions and Tariffs for Road and Ship Transport*

The objective is to be able to elaborate proposals for the railway transport mode that are effective and competitive with other modes.

The work package will be elaborated in close connection with the structuring of the railway tariff system (see WP 3140):

The development and actual situation of all relevant competing transport modes will be analysed as far as their

- transport capacity
- transport volumes, and
- transport charges

are concerned. This analysis is linked to the market analyses in Wps 3210 and 3220.

As far as possible there will be an estimate of future medium-term changes in the above mentioned key influence factors of transport services for all relevant competing modes.

Results:

The outcome will be a comprehensive survey of user charges of competing transport modes that are linked to their key operating data. Two time horizons will be given: present situation and expected medium-term development.

WP 3150 will give the study team a comprehensive survey of all relevant developments of charges in competing transport modes, which in turn will enable a realistic estimate of the own future income situation of the railway service centre.

WS 3200 Objectives and Strategy

Objectives and strategies have to be prepared for the fields listed below:

- Freight Transport Market Analysis and Product Definition
- Passenger Transport Market Analysis and Product Definition
- Operation
- Locomotive and Waggon Service
- Information Service
- Sales Strategy, Tariffs and Marketing.

The works will be based on the results of WS 3100.

The strategy to be pursued comprises all measures deducible from the deficiency analysis and will give recommendations to TCR in the form of an action programme in which objectives, contents, periods of time and responsibilities for the specific projects are determined. This strategy will serve as a basis for the foundation of the Trans-Caucasian Railway Service Centre.

When creating objectives and strategies for the railways of Armenia, Azerbaijan and Georgia, economically significant departments of labour and co-operations must be taken into account.

WP 3210 Freight Market Analysis; Product Definition

Project tasks resulting from the deficiency analysis of freight transport shall be included in this strategy of freight transport, market analysis, and product definition.

The tasks to be defined for market analysis have to lay main emphasis on:

- analysis of the freight transport market's structure
- listing of market structure elements
- access to the market
- market demand
- internal and external interlockings.

Taking up the results of WP 2100, Trade Potential, the product definition defines products of freight transport which are significant for the concrete conditions of TCR, especially regarding goods like:

- bulk goods (oil, oil products, building materials, etc.);
- capital goods (equipment, material specific to railway, etc.);
- consumer goods;
- agricultural goods (food aid).

As technologies of the freight traffic have to be included: block trains, trains for single waggon loads, trains of combined and multimodal traffic, and a technological solution for the transport of smaller goods.

All proposals for the strategy of freight transport shall be developed from the standpoint of the Trans-Caucasian Railway Service Centre yet to be founded.

WP 3220 Passenger Market Analysis; Product Definition; Charges; Ticketing and Reservation

Project tasks resulting from the deficiency analysis of passenger transport shall be included in this strategy of freight transport, market analysis, and product definition.

The tasks to be defined for the market analysis have to lay main emphasis on:

- analysis of the passenger transport market's structure
- listing of market structure elements
- access to the market
- market demand
- internal and external interlockings.

Taking up the results of WP 2100, Trade Potential, the product definition defines products of passenger transport which are significant for the concrete conditions of the TCR, especially regarding

- long-distance traffic
- local traffic
- international traffic

The technologies of long-distance traffic have to be directed towards the connections of big cities and agglomerations for business and tourist traffic; technologies of local traffic have to be directed towards the connections of cities and rural districts, including commuting labour, and of international traffic for the connection with centres of the neighbouring countries and over and above that.

As technologies of passenger transport shall be included: long-distance trains as fast day and night connections, and trains provided with higher comfort in international traffic.

To improve customers service, appropriate forms for the travelling service have to be suggested, including the ticket sale within the area of the TCR, and the seat reservation.

All proposals for the strategy of the passenger transport shall be developed from the standpoint of the Trans-Caucasian Railway Service Centre yet to be founded.

WP 3230 Operation

Project tasks resulting from the deficiency analyses of freight transport, passenger transport, and combined and multimodal transport shall be included in this strategy of operation.

Emphasis shall be laid on the question how to carry out the operational realisation of the products developed in freight transport, passenger transport, and combined and multimodal transports.

Strategy of operation is divided into the parts 'Train Formation' and 'Scheduling'.

Recommendations on train formation have to be given considering customer wishes (beginning/end of loading and arrival/departure, respectively) and optimal operational expenditures for Trans-Caucasian Railways (TCR) as a whole.

Recommendations for scheduling shall be made on the premise that at transfer points of freight traffic there be optimal exchange stations, and at transfer points of passenger traffic there be optimal change times of waggons.

All proposals for the strategy of passenger transport shall be developed from the standpoint of the Trans-Caucasian Railway Service Centre yet to be founded.

WP 3240 Locomotive and Waggon Service and Maintenance

Project tasks resulting from the deficiency analyses of freight transport, passenger transport, and combined and multimodal transport shall be included in this strategy of the locomotive and waggon service.

Emphasis shall be laid on the question how to carry out the realisation of the manufacturing of technologies developed in freight transport, passenger transport, and combined and multimodal transport.

Locomotive and waggon service strategy is divided into the parts 'Operation of Locomotives', 'Operation of Freight Waggons' and 'Maintenance of Rolling Stock'.

Recommendations for the operation of locomotives have to take into account optimal vehicle dynamics on the one hand and optimal efficiency of traction on the other hand.

Recommendations for the operation of freight waggons shall be made on the premise of smooth exchanging of waggons at the transfer points of Trans-Caucasian Railways, and on the joint use envisaged.

All proposals for the strategy of locomotive and waggon service and maintenance shall be developed from the standpoint of the Trans-Caucasian Railway Service Centre yet to be founded.

WP 3250 Information Service

The tasks of the information service comprise the gathering, processing, and storage of data on:

- the handling of orders, e.g. consignment data (order data base)
- the handling of imports/exports (e.g. for the Customs)
- cost accounting and controlling
- transfer and storage of goods
- transport logistics (e.g. pursuit of consignments)
- senders, forwarding agents, carriers, terminals incl. ports, recipients
- further service institutions, like, e.g., banks and insurance companies.

For the information service an analysis of requirements has to be prepared and a conception showing the necessary information packages.

Existing data processing services have to be analysed and possibly taken into account.

WP 3260 Sales Strategy; Tariffs, and Marketing

The objective is to develop a cost-efficient marketing strategy that will enable the railway service centre to capture a market share that is optimal and/or reasonable in relation to its economic efficiency.

The history of any measure of promotional character will be taken up. This includes those measures which had controversial effects on sales of the railway.

The strength of a modernised railway system will be identified.

This strength will be compared to competing modes in the transport sector, using SWOT (strength/weakness/opportunities and threads) analysis.

Depending on the outcome of the SWOT analysis, a package will be elaborated that includes proposals for

- modifications of the railway line within the technical outlay
- the structure of the services rendered (to underline the strength of the railway service)
- the price of the services rendered (in close link with WP 3140)
- the organisational modifications that are required to have a sales-oriented company (in close link to WP 2310)
- any sensitive programme of promotion that might render a positive cost-benefit relation (i.e. information on the new product(s) to potential customers)

The marginal cost of these activities will be identified and included in the business plan.

Results:

A proposal will be made for the organisational set-up of marketing activities (in close link with WPs 2310 and 2340).

The package will deliver a cost-effective marketing plan which implements the institutional objectives of the railway centre. It will be a comprehensive but realistic tool for sales management.

WS 3300 Foundation of a Service Company

WP 3310 Legal and Institutional Framework

The existing legal and institutional organisation of the present freight and passenger traffic operators in the three countries concerned will be analysed, taking into account the legal framework report of 1994.

Government representatives and legislators will be interviewed to ascertain the political will of each individual State concerning the future of its railway, and whether proposals (and which proposals) for the creation of a common Transcaucasian railway operator have a chance to be implemented. The need for legislative measures will be defined.

Corresponding proposals will be prepared.

The analysis of regional, national, bilateral or international rules and preconditions as to the foundation of joint ventures in the participating states of Armenia, Georgia, and Azerbaijan, including the pertinent provisions of commercial law and traffic law or other provisions, resp., like, for instance, customs provisions and tax regulations, is done with the support of legal experts, economists, and experts for taxes and customs in co-operation with representatives of the corresponding governmental institutions. Legal provisions and internal railway regulations regarding the use of the railway's infrastructure and port by third parties have to be assessed.

An essential component of the investigations will have to be the analysis of procedures regarding the registration of foreign investments in the respective countries.

Specific research will concern the

- relationship between the States and the railways (cf. WP 1230);
- ownership of the railway operator/s;
- degree of separation of the operator(s) from railway infrastructure authority/company (separate legal entities, integrated structure, profit and/or cost centres, etc.);
- legal form of the entities;
- management of the operating entities;
- separation of freight and passenger operators or not;
- monopoly for one operator, or competition framework
- legal mandates for the operator/s
- conditions for access to the profession of railway operator
- relationship between railway infrastructure authority/company and operators (cf. WP 1230);
- public service obligations;

- safety control;
- establishment and approval of tariffs/rates.

Results:

- Description of present situation
- Proposals for future development
- Definition of legislative need
- Recommendation on the extension of the legal framework.

WP 3320 Evaluation of Different Management and Ownership Strategies and Selection

On the basis of the analysis of legal and institutional basic conditions regarding the foundation of a service company, this work package is to analyse and evaluate management and ownership strategies principally coming into consideration. This will be done in the following steps:

- (1) Provision of a methodical framework and of an evaluation system for the classification and assessment of strategies;
- (2) Determination and documentation of strategies or first attempts for strategies, resp.;
- (3) Evaluation of the strategies by means of the a/m evaluation system;
- (4) Selection of strategies, depending on the scenarios defined and on the pre-conditions;
- (5) Verification of selected strategies with a view to economic and ecological aspects or national particularities, resp.

Methodology and evaluation system will be prepared prior to the analysis and will be presented to all participants to this project.

Presentation of the strategies is recommended to be done in workshops, inviting the principal parties concerned.

Preparation and execution of such workshops will be done by independent experts, i.e. specialists who are not in any way involved in the service company to be founded, or are planned to be a party to it.

Documentation of strategies is to be done by the experts responsible for the execution of the workshops.

Assessment and selection will be done under the responsibility of a so-called 'steering committee' which, prior to beginning the works for this work package, will have to be determined with a view to the persons being members to it.

The results of this work package will form the basis for the investigation on potential financing sources and for the preparation of a business plan.

WP 3330 Objectives and Organisational Structure, Forwarders and Travel Agencies

Main tasks of the company will be to prepare concepts for

- freight transport
 - * railway freight transport
 - * combined transport
 - * multimodal transport
- passenger transport,

considering the responsibilities of

- national and international forwarders and travel agencies,
- railways, and
- shipping companies and ports.

Main emphasis will have to be laid on creating optimal conditions for industry and passengers, and on guaranteeing a high level of service and security under difficult political conditions.

WP 3340 Sources of Financing

The investigation as to potential sources of financing has to be done

- within the service company, especially with the railway administration involved,
- within the potential Community of users, especially oil and gas companies and firms working in the tourism industry,
- at government level (tax reliefs, state promotion programmes).

Further fields of investigation will be:

- international and national finance markets (e.g. exchange),
- potential, international investors,
- international promotion programmes / financial aids.

Persons to be contacted as regards the analysis of internal possibilities for financing will be the experts of the enterprises pertaining to the service company to be founded, and/or representatives of the national economy and large-scale enterprises.

Results:

Report about financing possibilities.

WP 3350 Human Resources Management

Based on the organisational structure of the service centre (WP 3330), the objectives, and the future strategy (WP 3200) the requirements as to personnel will be determined.

These requirements can be classified according to organisational criteria in connection with the management of human resources, like, e.g.:

- availability of personnel;
- responsibilities of personnel (limits to freedom of action);
- technical basis for the support of activities, and
- number of personnel,

and according to individual criteria of staff members in a joint venture company being of importance for the activities to be performed like, e.g.:

- management qualities and organisational talent;
- ability to work in teams / to manage teams
- social / communicative abilities (especially when dealing with customers);
- ability to settle conflicts;
- professional competence (in particular: marketing, strategic planning, cost accounting, etc.).

The comparison of these requirements with the actual status (WP 1200) of human resources results in the definition of deficiencies with a view to the objectives and future strategy of the service centre.

Main objective here is the most appropriate co-operation of all staff from the three republics on the personnel and operational management side.

Those measures helping to overcome the deficiencies in the human resources will be compiled in an 'Action Programme', detailed in terms of time and finance. Such measures are:

- special training for management personnel, concerning relevant individual abilities and organisational management;
- special training for specialised personnel, concerning relevant individual abilities.

The methodical bases best suited for these training units are, on the one hand, the internationally acknowledged managerial and sales GRID technique, and, on the other hand, modern seminars in the form of 'workshops', calling for contributions of their participants.

They do not only guarantee the impartment of knowledge, but at the same time - and very strongly so - that own experience can be integrated and developed in a common work process.

The form in which these measures are presented will be adapted to the different contents and requirements as to:

- duration (one or more days, only once or permanently)
- location (either integrated in the local working sphere or on 'neutral' territory)
- training group (national group or joint group, specific or unspecific selection of participants, senior managers or trainees)
- methods and programme of training.

This work package will be handled assisted by local specialists.

Results:

- Specific requirements as to human resources in the service centre
- Schedule of measures
- Training of abilities representing the most important factors of success for the service centre
- Recommendations as to how the 'service centre' strategy, relative to human resources, can best be realized (contribution to WP 2310).

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WS 3400 Business Plan

WP 3410 Financing Institution for Implementation

Based on WP 3340, Sources of Financing, under this present work package potential financing institutions have to be selected and assessed with a view to their preconditions and conditions for the overall financing.

Analysis, selection, and assessment of potential financing institutions will be done by means of a valuation matrix yet to be supplied.

The results of this present work package will be integrated into WP 3440, Sensitivity Analysis.

WP 3420 Cost and Revenue Estimates

Based on the present conditions to be found with TCR (WP 3100) and on the choice of strategy (WP 3200 and WP 3300), an estimate of costs and revenues can be done, aided by experts from the national service companies and/or persons with experience in similar projects.

Basis of such estimates is a list, structured according to the specific cost types and quantifiable profits. Non-quantifiable profits like, for instance, from the environmental protection sector, have to be indicated separately.

The time horizon for these estimates is five (5) years, with a forecast of twenty (20) years. The description is given as a function of the planned extension phases of the company.

The present work package forms the basis for WP 3440, Financial Evaluation.

WP 3430 Organisational Plan for Service Company

Based on the results of WP 3330, the contractual structure between the Company on the one side and the

- railway administrations,
- port administrations,
- forwarders, and
- travel agencies

on the other side will be embodied in the Company. This structure will include items like:

- trackage right.

- use of waggons and locomotives,
- crews for trains,
- cleaning of rolling stock,
- maintenance support,
- calculation of charges,
- logistic management of waggons and goods,
- ticket sale and reservation,
- planning of transshipment,
- information service.

Railway administrations, ports, and shipping companies will be paid for the services they will render to the Company. The conditions in this field remain to be elaborated.

Responsibilities of each party concerned and the possible forms of co-operation have already been described.

The possible assessment of the Company's work from outside will have to be defined.

The management structure needs to be elaborated and agreed with the railway companies, the port and shipping companies.

The territorial structure of the organisation remains to be defined.

The role of the maintenance shop as a private enterprise needs to be determined and agreed.

WP 3440 Financial Evaluation

Depending on the management and owner strategies selected, various financing variants will be compared and evaluated.

Evaluation will be done by means of criteria fixed and weighted beforehand.

A vital precondition for the realisation of this present work package are the results from work packages 3300 and/or 3410.

WP 3450 Sensitivity Analysis

The sensitivity analysis is done by means of the parameter-dependent financing variants mentioned in WP 3440. Appropriate scenarios will be prepared well in advance in co-operation with experts of the respective railway administrations and further project members.

Results:

Business Plan with different options as to the implementation of the Joint Venture Service Company.

4000 PORT AND FERRY SERVICES

WS 4100 Present Conditions in Ports

WP 4110 *Port Conditions and Services*

The present conditions in the Ports of Baku, Poti and Batumi will be critically assessed with particular regard to physical constraints, capacity limitations and port performance deficiencies relevant to and with particular impact on present and future development of railway transport. Also, the Ports, Aktau, Krasnovodsk and Trabzon will be considered as per TOR; however, this assessment will be limited to the existing and future development of terminals for the complementary ferry services. The assessment will be based on available port information and studies as well as physical inspection of the port facilities. It will include:

- Port infrastructure such as rail access, road access, open storage areas, quays and jetties, harbour basin and approach channel
- Port superstructure such as transit sheds, warehouses, tanks, installations, marshalling yard, railway lines incl. port/railway interchange
- Port equipment such as quay cranes, ship loaders and unloaders, mechanical handling and rolling transport equipment, locomotives/shunting equipment; equipment availability and utilization
- Port statistics (import and export statistics divided by liquid bulk, dry bulk cargo, containers, RoRo and conventional general cargo, traffic statistics for railways, road and barge transport, container statistics)
- Port operations (cargo assignment, berth utilization, performance indicators, capacities for berth throughput, storage and receipt/delivery taking into account the interdependence between performance and efficiency of the port and of the railway system), ancillary port services
- Port organisation (e.g. organisation of dock work, working time, port management structure/s, co-operation with railway authorities and port users) and port personnel (number, qualification, payment system/s, labour laws, social conditions and industrial relations, etc.)
- Port and cargo handling tariffs, budgeting, financial accounting and costing
- Legal and institutional framework (port policy, governing port and other legislation, control through ministries and other supervisory bodies, customs regulations, port autonomy, identification of external factors limiting the performance of the port).

Results:

- Up-to-date, concise information on an integrated assessment of existing port facilities, services and organisation
- Analysis of existing bottlenecks, constraints and deficiencies with focus on railway operations.

WP 4120 Technical and Operational Requirements

The demand for modern services of the ports mentioned under WP 4110 as important sub-system of the future railway transport system will be determined and the related technical, operational and organisational requirements to overcome the problems mentioned under WP 4110 will be identified. Main objective of this task will be to balance port capacities and level of port services with the future potential and unhampered flow of railway traffic, thus to avoid railway system's development being affected by a port development lagging behind. The assessment will not be limited to the technical and operational development, but will also duly consider - under separate package - the necessary organisational and institutional development as far as appropriate, and the legal framework report, commissioned to start in 1996. It will be based on WP 4110 and will cover in particular:

- Port infrastructure, port zoning including free zone areas
- Port superstructure, facilities and installations
- Port equipment with particular regard to the dispatch of railway waggons
- Port capacities and operations with emphasis on container handling and intermodal operations and on co-operation with railways, customs, forwarders, ship agents, shippers and receivers (e.g. on positioning of railway waggons, operations planning and monitoring)
- Forecast on throughput of cargo for main commodities, forecasts on shipping (future types and sizes of vessels, average and max. shipload, arrival pattern), containers (20-ft/40-ft ratio, full/empty ratio, import/export ratio, FCL/LCL ratio), and modal split
- Port organisation and institutional environment (possibly also commercialization or <semi->privatization of port services and port labour reform)
- Future development plans (status, timing, investment costs, impact on port capacity and importance for railway transport)
- Identification of investments required.

Results:

- Identification of future demand for modern, efficient and cost-effective port facilities, services and organisation
- Analysis of objectives how to eliminate or minimize existing bottlenecks, constraints and deficiencies and to align the capacities and standards of services of the ports with the ones of the future railway system.

WP 4130 Port Development Options and Strategy

A concise proposal will be made how to strengthen the conditions and services in the ports mentioned in WP 4110 as important links in the integrated railway transport

chain and main destinations and origins of the potential cargoes to be transported. As far as appropriate, development options will be identified and a phased development strategy will be proposed which will have to tune in with the rehabilitation and development programme for the railway system itself. The strategy will include:

- Development of cargo handling operations and related services
- Institutional development
- Organisational and management development
- Finance and human resources development
- Physical port development and outline on investment programme, including measures for free zone areas and related transit management as well as multimodal operations
- Identification of limiting external factors that may impede the future development, and of important prerequisites for the successful implementation of the development strategy.

Results:

- Strategy for the improvement of the existing port performance and for securing high levels of services in line with the future demand of the railways and of customers of the port
- Outline on investment programme for rehabilitation and extension measures to cope with expected increase in traffic
- Strategy for complementary organisational, management and institutional development.

WS 4200 Technical and Operational Requirements for Modern Ferry Connections

WP 4210 Present Waggon and Truck Transfer

The picture of the present ferry transport in the Caspian Sea will be drawn by the qualitative and quantitative parameters for the ferry ports of Baku, Krasnovodsk, and Aktau: kind and number of ferries, lines (destinations); kind and number of waggons; kind and number of trucks; frequency of shipping; regulations (conditions of transport).

The analysis must also include the present organisation and information system.

Present conditions will be critically assessed.

This assessment will be based both on available information, and on physical inspection of the ferry facilities.

Results:

- Description of the present infrastructure, capacity, and performance;
- Description of the present organisation and information system;
- Discovery of bottlenecks in the present system impeding efficient ferry transport;
- Determination of future marketing position of the Caspian Sea ferry transport.

WP 4220 Technical and Operational Requirements

The consultant will submit a proposal on how to operate ferry transport in Caspian Sea. This proposal will include infrastructural (also superstructural) requirements. Furthermore, customers' requirements have to be analysed, resulting in suggestions on improved operation. These will be prepared by means of comparisons (state-of-the-art vs. actual state) and expert knowledge (based on studies and projects regarding the Baltic Sea and the Black Sea) available in the project team.

Results:

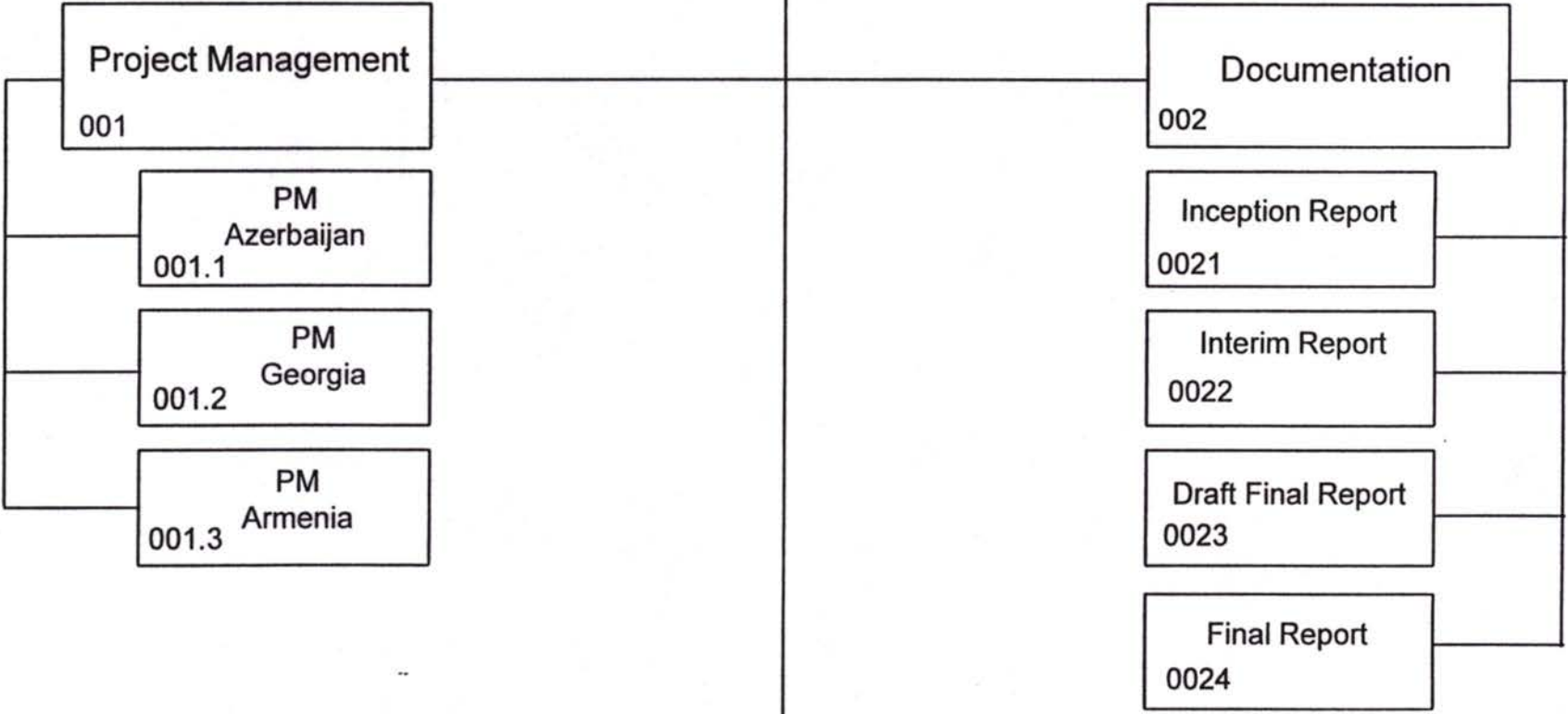
- Identification of future demand for efficient ferry transport, corresponding to the future railway system;
- Proposals how to eliminate or minimise existing bottlenecks.

B.2.4 Work Plan

B.2.4.1 Work Breakdown Structure

In order to draw up the Task Schedule, each task (Work Package, WP) had to be defined and the links between them. This led to the preparation of a 'Work Breakdown Structure' for the project (see next pages) which, however, does not give any information in terms of time.

Joint Venture for the
Trans-Caucasian Railway
Work-Breakdown Structure



Railway Infrastructure Authority
1000 DE-Consult

Business Strategy Infrastructure
2000 DE-Consult

Trans-Caucasian Railway Service Centre
3000 TEWET

Port and Ferry Service
4000 TEWET

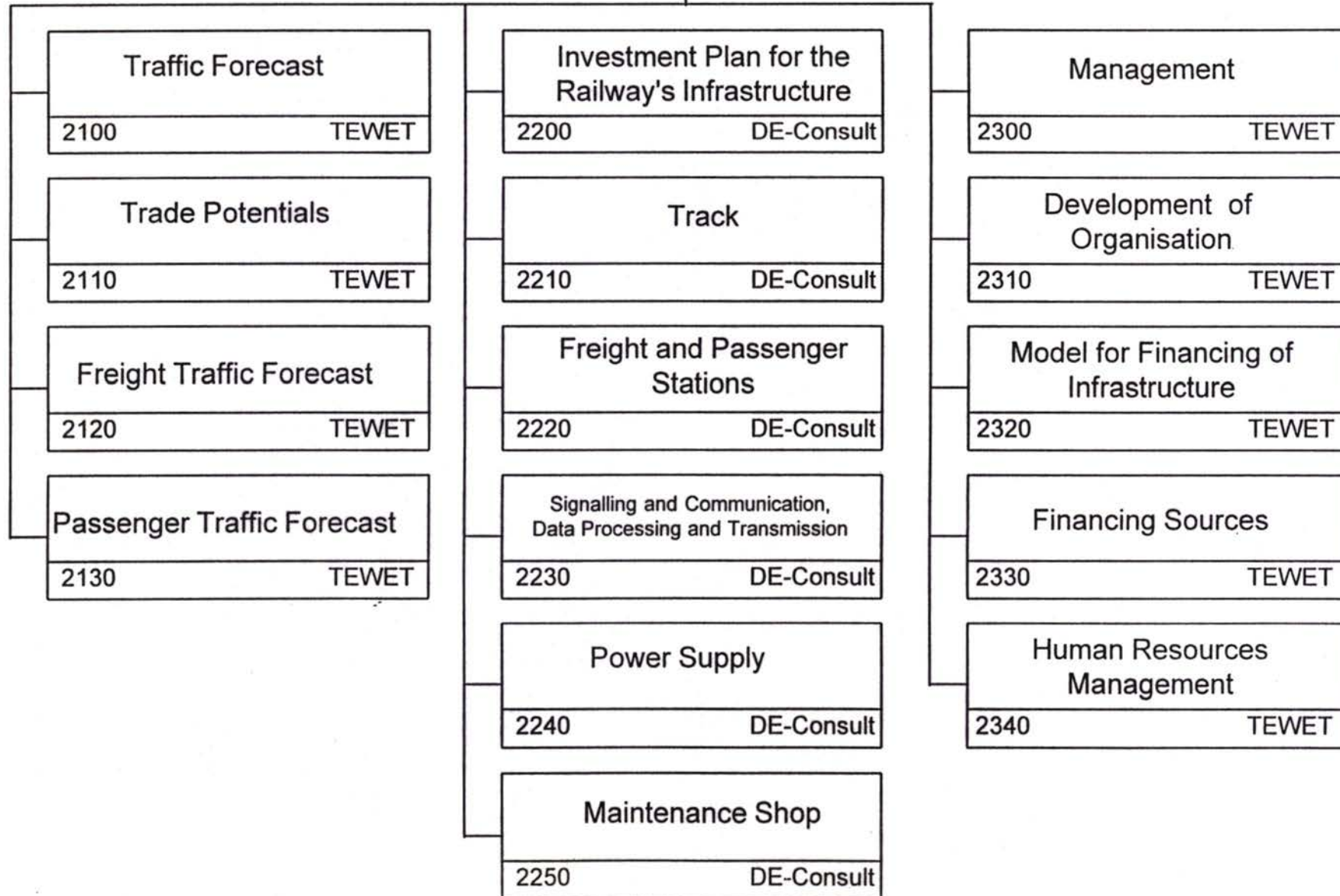
Railway Infrastructure Authority
1000

Present Condition of Network	
1100	DE-Consult
Technical Conditions of Track	
1110	DE-Consult
Technical Conditions of Bridges	
1120	DE-Consult
Signalling and Communication	
1130	DE-Consult
Power Supply	
1140	DE-Consult
Technical Conditions of Stations	
1150	DE-Consult
Maintenance Technology for Rolling Stock	
1160	DE-Consult
Deficiency Analysis and Rehabilitation Plan	
1170	DE-Consult

Organisational, Legal and Financing Conditions; Audit	
1200	TEWET
Analysis of Present Organisation	
1210	TEWET
Financial Analysis	
1220	TEWET
Legal and Institutional Organisation	
1230	TEWET
Deficiency Analysis and Rehabilitation Plan	
1240	TEWET

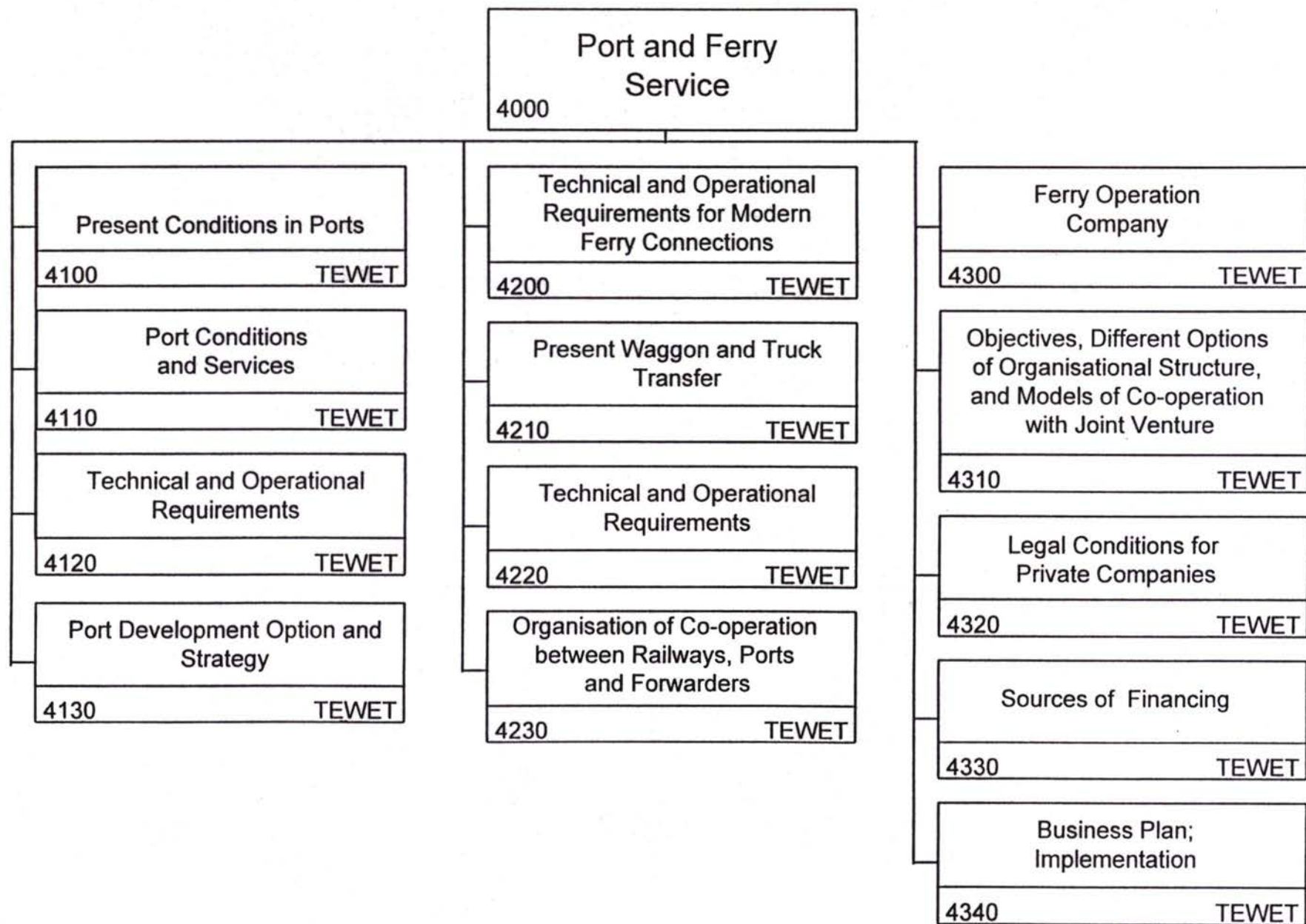
Establishment of International Co-operation	
1300	TEWET
Definition of the Main Aims of Co-operation	
1310	TEWET
Alternative Forms of Co-operation	
1320	TEWET
Requirements of International Agreements	
1330	TEWET
Border Control and Customs Procedures	
1340	TEWET

**Business Strategy
Infrastructure**
2000

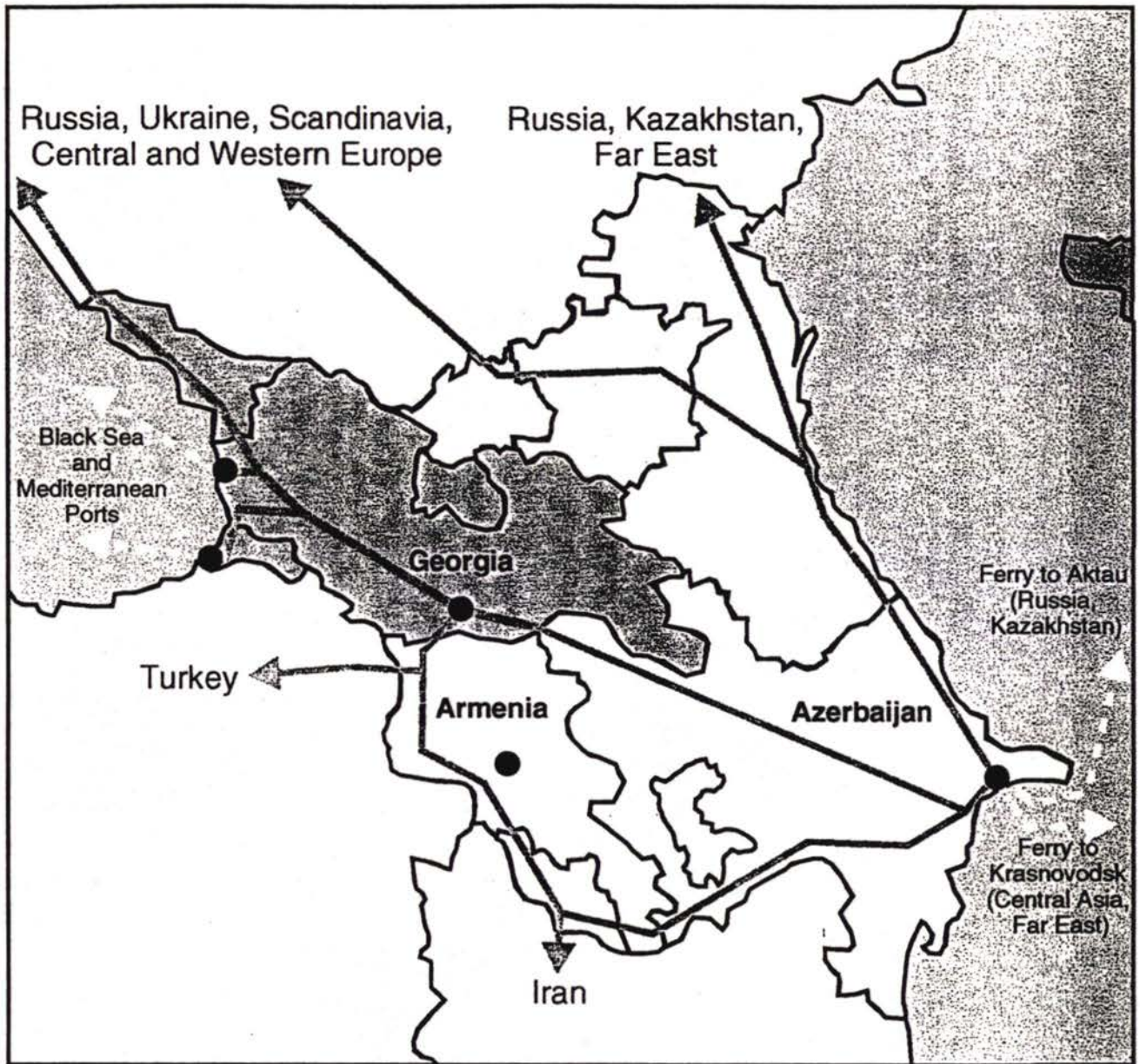


**Trans-Caucasian Railway
Service Centre**
3000

Present Conditions of the TCR and Deficiencies Analysis 3100 DE-Consult/TEWET	Objectives and Strategy 3200 TEWET/DE-Consult	Foundation of a Service Company 3300 TEWET	Business Plan 3400 TEWET
Freight Transport 3110 DE-Consult	Freight Market Analysis, Product Definition 3210 DE-Consult	Legal and Institutional Framework 3310 TEWET	Financing Institution for Implementation 3410 TEWET
Passenger Transport 3120 DE-Consult	Passenger Market Analysis, Product Definition, Charges, Ticketing and Reservation 3220 DE-Consult	Evaluation of Different Management and Owner- ship Strategies and Selection 3320 TEWET	Cost and Revenue Estimates 3420 TEWET
Combined or Multimodal Transport 3130 DE-Consult	Operation 3230 DE-Consult	Objectives and Organi- sational Structure, Forwar- ders and Travel Agencies 3330 TEWET	Organisational Plan for Operating Company 3430 TEWET
Tariffs, User Charges and Revenues 3140 TEWET	Locomotive and Waggon Service and Maintenance 3240 DE-Consult	Sources of Financing 3340 TEWET	Financial Evaluation 3440 TEWET
Conditions and Tariffs for Road and Ship Transports 3150 TEWET	Information Service 3250 DE-Consult	Human Resource Management 3350 TEWET	Sensitivity Analysis 3450 TEWET
	Sales Strategy; Tariffs and Marketing 3260 TEWET		



Main Railway Transport Corridors



B.2.4.2 Bar Chart on Task Implementation and Report Submission

The schedule shown hereafter is the result of the Consultant's relevant experience in similar projects, and of careful assessment of the Clients' needs, leading to a schedule in terms of time that lists activities of all elements concerned, allocating duration and indicating logical relations between the main tasks. Since some of the details cannot be specified unless the Inception Report is available, the Consultant included in this present schedule only the main Work Packages (tasks) and the man-power needed for their execution. A more detailed description of individual periods and man-power needed for each Work Package will be given with the Inception Report.

B.2.4.3 Task Assignments

For a better understanding of the respective task assignments, hereafter follows a table giving the numbers of the work packages (tasks) and the names of the experts assigned.

1000	RAILWAY INFRASTRUCTURE AUTHORITY
WS 1100	Present Condition of Network
WP 1110	Technical Condition of Track
WP 1120	Technical Condition of Bridges
WP 1130	Signalling and Communication
WP 1140	Power Supply
WP 1150	Technical Condition of Stations
WP 1160	Maintenance Technology for Rolling Stock
WP 1170	Deficiency Analysis and Rehabilitation Plan
WS 1200	Organisational, Legal, and Financing Conditions; Audit
WP 1210	Analysis of Present Organisation
WP 1220	Financial Analysis
WP 1230	Legal and Institutional Organisation
WP 1240	Deficiency Analysis and Rehabilitation Plan
WS 1300	Establishment of International Co-operation
WP 1310	Definition of the Main Aims of Co-operation
WP 1320	Alternative Forms of Co-operation
WP 1330	Requirements of International Agreements
WP 1340	Border Control and Customs Procedures
2000	BUSINESS STRATEGY INFRASTRUCTURE
WS 2100	Traffic Forecast
WP 2110	Trade Potentials
WP 2120	Freight Traffic Forecast
WP 2130	Passenger Traffic Forecast
WS 2200	Investment Plan for the Railway's Infrastructure
WP 2210	Track
WP 2220	Freight and Passenger Stations
WP 2230	Signalling and Communication, Data Processing & Transmission
WP 2240	Power Supply
WP 2250	Maintenance Shop
WS 2300	Management
WP 2310	Development of Organisation
WP 2320	Model for Financing of Infrastructure
WP 2330	Financing Sources
WP 2340	Human Resources Management
3000	TRANS-CAUCASIAN RAILWAY SERVICE CENTRE
WS 3100	Present Conditions of TCR and Deficiency Analysis
WP 3110	Freight Transport
WP 3120	Passenger Transport
WP 3130	Combined or Multimodal Transport
WP 3140	Tariffs, User Charges, and Revenues
WP 3150	Conditions and Tariffs for Road and Ship Transport

- WS 3200 Objectives and Strategy**
 WP 3210 Freight Market Analysis; Product Definition
 WP 3220 Passenger Market Analysis; Product Definition; Charges; Ticketing and Reservation
 WP 3230 Operation
 WP 3240 Locomotive and Waggon Service and Maintenance
 WP 3250 Information Service
 WP 3260 Sales Strategy; Tariffs, and Marketing
- WS 3300 Foundation of a Service Company**
 WP 3310 Legal and Institutional Framework
 WP 3320 Evaluation of Different Management and Ownership Strategies and Selection
 WP 3330 Objectives and Organisational Structure, Forwarders and Travel Agencies
 WP 3340 Sources of Financing
 WP 3350 Human Resources Management
- WS 3400 Business Plan**
 WP 3410 Financing Institution for Implementation
 WP 3420 Cost and Revenue Estimates
 WP 3430 Organisational Plan for Service Company
 WP 3440 Financial Evaluation
 WP 3450 Sensitivity Analysis
- 4000 PORT AND FERRY SERVICES**
- WS 4100 Present Conditions in Ports**
 WP 4110 Port Conditions and Services
 WP 4120 Technical and Operational Requirements
 WP 4130 Port Development Options and Strategy
- WS 4200 Technical and Operational Requirements for Modern Ferry Connections**
 WP 4210 Present Waggon and Truck Transfer
 WP 4220 Technical and Operational Requirements
 WP 4230 Organisation of Co-operation between Railways, Ports, and Forwarders
- WS 4300 Ferry Operation Company**
 WP 4310 Objectives, Different Options of Organisational Structure, and Models for Co-operation with Joint Venture
 WP 4320 Legal Conditions for Private Companies
 WP 4330 Sources of Financing
 WP 4340 Business Plan; Implementation

Expert Workpackage Cross Reference

	Hippen- stiel	Dr. Gleue	Dr. Kranz	Dr. Müller	Prof. Hellmann	Schorr	Theile	Morisse	Michalak	Sieg	Freitag, Stöcker	Zander	Enseleit	Dr. Häfner	Dr. Leutiger
001	x	x	x	x											
001. 1			x												
001. 2				x											
001. 3		x													
002		x													
1000			(x)	x											
1100				x											
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1300															
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40														x	
50											x				

	Hippen- stiel	Dr. Gleue	Dr. Kranz	Dr. Müller	Prof. Hellmann	Schorr	Theile	Morisse	Michalak	Sieg	Freitag Stöcker	Zander	Enseleit	Dr. Häfner	Dr. Leutiger
2300			x												
10			x						x						
20					x				x						x
30					x										x
40									x						
3000			x	(x)											
3100				x											
10				x											
20				x											
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50							x								
3200				x											
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20				x						x					
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60							x								
3300		x													
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50									x						
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30			x			x									
40					x	x									
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4000		(x)	x												
4100															
10								x							
20								x							
4200															
10		x													
20			x						x						
30		x	x						x						

	Hippen- stiel	Dr. Gleue	Dr. Kranz	Dr. Müller	Prof. Hellmann	Schorr	Theile	Morisse	Michalak	Sieg	Freitag, Stöcker	Zander	Enseleit	Dr. Häfner	Dr. Leutiger
4300															
10						x									
20		x													
30					x	x									
40			x			x									x

B.2.1 General Approach to the Project

Besides being of great political importance for the improvement of co-operation between the three Caucasian Republics, the project will be of significant economic importance. Precondition to nourish these benefits is massive investment to be secured from Europe and other countries in order to help materialise joint venture proposals to be elaborated in the course of this study.

TEWET and DE-Consult through their functional links to Deutsche Bahn AG can guarantee full involvement of Deutsche Bahn AG; a number of large German and other European companies in related areas have already flagged to TEWET/DE-Consult/GTZ their strongest interest for investments in such ventures.

The particular attention the German government is giving to Georgia and the close personal relations already created will also prove beneficial in this respect.

Political Conditions

The political conditions currently pertaining in the region and their short-term development are crucial for the project and need to be considered carefully. The most important issues in this respect are:

- How the Russian doctrine of the "near abroad" will de facto apply in the region
- Despite the very slow progress in the Nagorno-Karabakh conflict it is expected that a settlement could be achieved in the near future.
- Relations between Turkey and Armenia have improved spectacularly. Turkey is strongly in favour of re-establishing trade flows via traditional railway links (e.g. the ones from Azerbaijan via Armenia to Turkey). This also concerns Turkish interest for pipelines from Azerbaijan via Georgia and possibly Armenia to Turkish ports in the Mediterranean.
- Georgia is trying to convince Russia to bring about a settlement of the Abkhazian and South Ossetian conflicts. In particular the solution of the Abkhazian conflict would enable the Georgian railway to Russia and the Ukraine to be reopened.
- Ongoing negotiations between Russia and Azerbaijan over the control of the oil reserves in the Caspian Sea and the Russian participation in its exploitation could result in lifting the Russian blocking of traffic from Azerbaijan via Chechnia.
- The perspective of Central Asian States to increasing use of the route via Caspian Sea and Azerbaijan to the Georgian ports for trade with the Western Hemisphere as well as the export of gas and oil is also crucial for the future of the Trans-Caucasian Railways. The TRACECA projects and the recent initiative of the European Commission to set up a working group on oil and gas pipelines could act as a catalyst.

Regional Co-operation and Potentials

Furthermore, it should be borne in mind that all Caucasian Republics are increasingly aware that regional co-operation represents a major vehicle for sustainable economic development and for strengthening of their independence. However the mistrust between Azerbaijan and Armenia at political level is still very strong due to long years of conflict in Nagorno Karabakh.

In contrast railway people appear much more open to co-operation, as they were colleagues working together only some years ago in the former USSR railway organisation. This fact should be fully exploited in the project. Indeed, the project should act as a catalyst for regional co-operation and as vehicle for building of confidence on a purely technical base.

In this context it is obvious that the railway Poti/Batumi - Tbilisi - Baku including incorporation of the Caspian Shipping Company (refer also to the ongoing TRACECA project and to the "Ferries to Aktau"-project) is the most promising area for a Joint Venture. The line is apt for the transport of the lion's share of goods in the Caucasus region. The operation of the massive food aid of the EC has demonstrated the efficiency despite the desolate state of the equipment and infrastructure.

Informal contacts of TEWET/DE-Consult/GTZ with the oil consortium in Azerbaijan (Pennroil / BP / Lukoil) indicate that - while the consortium intends to make use of existing pipelines for transport of "early oil" to the Black Sea rather than railways - it has a strong interest for using this railway for transport of large quantities of equipment which up to now they are obliged to fly-in to Baku by plane. Two other consortia which recently entered into agreements with Azerbaijan on exploitation of other resources will probably have the same interest. Furthermore, the construction of any oil- or gas-pipelines from Central Asia through the Caspian Sea to Baku (and further) will be of crucial influence, especially with respect to the financial viability of the railway.

Although the railway line between Caspian and Black Sea does not directly touch the territory of Armenia, this railway should also be considered as the Armenian Railway links the aforementioned corridor with Turkey and Iran. So it should be included into the joint venture in order to preserve the basic objective of this project, namely to act opportunity to building of confidence and as catalyst for co-operation among all three Caucasian Republics.

TEWET/DE-Consult/GTZ will undertake all possible efforts to convince Azeri and Georgian authorities of the need to include Armenia. However, political backing by the Commission in this question would appear essential.

Political Acceptability

Political acceptability of joint venture proposals by the governments concerned is an important parameter. In view of the very complex political situation and the deep mistrust between Armenia and Azerbaijan, we need to be careful not to propose ambitious scenarios from the outset.

Hereby it should be kept in mind that railways are sectors of strategic importance to all three countries. Therefore it is likely that they would not agree to give up control of their national railways and probably may request a "blocking minority" in any joint venture. Nevertheless the project in its final stage should also develop scenarios reaching further than the one finally accepted by the three governments.

All alternate scenarios must be formulated in a way that they will guarantee long term economic and financial viability of the joint ventures under the given assumptions on economic developments. Particular attention will be paid to the viability and financial attractiveness of the scenario eventually accepted by the governments. All efforts to attract European investments, co-financing by international financing institutions and if appropriate investments by oil consortia and/or other interested parties will be concentrated on this scenario.

The process described above will need continuous reassessment in order to take into account major developments of political issues in the region as described above.

Technically and Economically Based Argumentation

In its discussion with the governments and institutions of the three republics concerned TEWET/DE-Consult/GTZ intends to put forward exclusively technical arguments which plead in favour of a joint venture, such as:

- National railways, although of strategic importance, cannot survive economically if they are not modernised and restructured on the framework of a supranational structure.
- Current practice of "duplicating" all services, equipment, and maintenance, to overcome the full diversification among republics during the former USSR, is not sustainable
- Under the tight budgetary discipline imposed by the IMF programme the governments cannot afford any longer to cover huge deficits of their railways.
- Modernisation and restructuring, recapitalisation and introduction of modern management techniques can only be assured by foreign investors which the project is aimed to mobilise if governments can agree on a viable joint venture option.

TEWET/DE-Consult/GTZ consider that much can be achieved by means of such technical and economical arguments. However, in view of the complex political context of this particular project, political support by the EC and the Commission seems to be essential. Sensibilisation of the recipient states as well as political backing at top level by the Commission and local embassies of member states of the EC in favour of the project in general and of the most promising joint venture alternatives which the project will produce will be an essential complement to its success.

Technical Approach

It seems worth to shortly recall the position of the railway in the business of transportation. It is characterised by losses in passenger transportation and drastic losses in freight transportation as shown by the figures of passengers and freight transported in Azerbaijan and Georgia:

Transportation Volume (Passengers and Freight)

	Freight Transport (Mio t)				Passenger Transport (Mio Pass.)			
	1991	1992	1993	1994	1991	1992	1993	1994
Azerbaijan	76.2	39.8	25	12.9	15.4	13	9.8	10.6
Georgia	20.1	7.7	5.3	3	11	7.6	8	9.8
Former SU 1)	3755.5	3107	2451.1	2043	3602.3	3325.4	3395.9	3166.8
OSShD	5915	5207	4608	4184	6236	5841	5627	5392

Development of Transportation Volume (1991 = 1.00)

	Freight Transport (Mio t)				Passenger Transport (Mio Pass.)			
	1991	1992	1993	1994	1991	1992	1993	1994
Azerbaijan	1	0.522	0.328	0.169	1	0.844	0.636	0.688
Georgia	1	0.383	0.264	0.149	1	0.691	0.727	0.891
Former SU 1)	1	0.827	0.653	0.544	1	0.923	0.943	0.879
OSShD	1	0.880	0.779	0.707	1	0.937	0.902	0.865

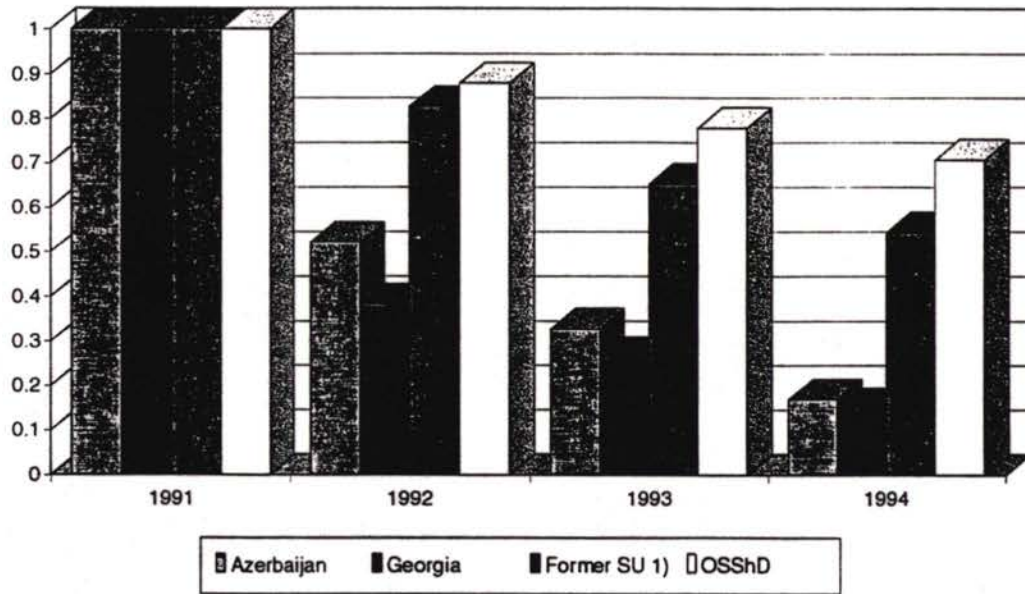
1) Armenia, Tadshikistan, Kyrgistan not included

The passenger volume decreased by 1/3 in Azerbaijan and by 10 % in Georgia, having their lows in 1993 (Azerbaijan, 63.6 %) and 1992 (Georgia 69.1 %). So with a view to passengers there seems to be a tendency for recovery which is opposite to the tendency, if all former Soviet Union States or the OSShD members are considered.

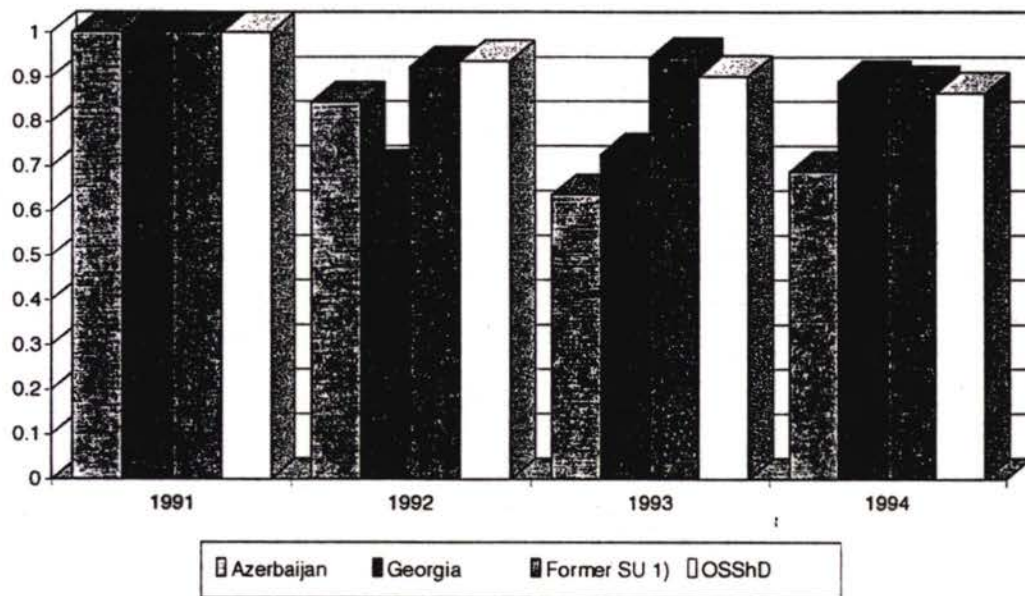
But a devastating picture is shown in freight transport; both railways have lost approximately 85 % of their freight volume, which is a much higher decline than in the former Soviet Union States as well as for all OSShD members.

It can be assumed that the same applies - at least in tendency - also for Armenia.

Development of Freight Transport (1991 = 1.00)



Development of Passenger Transport (1991 = 1.00)



1) Armenia, Tadshikistan, Kyrgistan not included (data not available)

The consequences are obvious and form a vicious circle: Unreliable services lead to a loss of business, which in turn lead via the loss of revenues to lack of funds. The lack of funds leads to deteriorating infrastructure and operational means (rolling stock etc.), which in turn causes unreliable services.

The problem is aggravated by external influences, the most important to be named are:

- the general political situation

B.2.2 Project Description

This section contains the methodological and organisational measures the Consultant deems necessary to process the parts of the project according to the requirements laid down in the Terms of Reference.

The general approach to be applied in this project can be described as follows:

Within the Terms of Reference the various tasks to be performed have been described, in total nine tasks, which are very comprehensive and give a general sequence of activities. But each task covers numerous topics so that these topics have been broken down to various groups with a number of work packages each (see below). From the thematic point of view these groups are:

- railway infrastructure authority
- business strategy infrastructure
- Trans-Caucasian railway service centre
- port and ferry services.

Each of these groups contains a thorough analysis (technical, organisational, economical and financial, legal). Based on this analysis scenarios for future developments will be prepared to estimate future trade potentials, transport requirements, and requirements for rehabilitation measures (investment programmes). Scenarios for possible organisational developments of the joint ventures will be prepared and assessed with a view of coping with the estimated demand. Financial consequences under different scenarios for economic development, development of fares, fees, and tariffs etc. will be demonstrated as to obtain the most viable solution.

The following table shows the connections between the work streams / work packages and the Terms of Reference.

**Relationship between Work Breakdown / Work Packages and ToR
- Joint Venture for the Trans-Caucasian Railway -**

WP	Task	1	2	3	4	5	6	7	8	9
1100	10		x							
	20		x							
	30		x							
	40		x							
	50		x							
	60		x							
	70			x						
	1200	10		x			x			
20						x		x		
30			x		x	x		x		
40					x	x				
50					x	x				
1300	10		x							
	20					x	x			
	30					x		x		
	40							x		x
2100	10	x								
	20	x								
	30	x								
2200	10									x
	20									x
	30									x
	40		x							x
	50									x
2300	10						x			
	20						x			x
	30						x			x
	40						x	x	x	

WP	Task	1	2	3	4	5	6	7	8	9
	3100									
	10	x		x						
	20			x						
	30			x		x				
	40		x							
	50			x						
	3200									
	10					x				
	20					x				
	30					x				
	40					x				
	50									
	60		x							
	3300									
	10				✓	✓				
	20					x				
	30			x		x				
	40				(x)	x	✓ (x)		x	
	50									
	3400									
	10						x	x		
	20						x	x		x
	30						x	x		x
	40						x			x
	50						x			x
	4100									
	10		x							
	20	x	x							
	4200									
	10			x						
	20									
	30									
	4300									
	10					x	x	x		x
	20					x	x	x		x
	30					x	x	x		x
	40				x	x	x	x		x
	50					x		x		x

To secure performance of the project within the anticipated time frame it is essential to make as much use as possible of the information already available or at present under preparation. This applies to studies and investigations already performed as well as to those at present in execution on behalf of different donors (as already mentioned in the ToR). Within the TRACECA programme a lot of other projects is foreseen, some of them being of high importance for the project on offer. In this respect are to be named:

- The "*Regional Forecasting Model*" (as already mentioned in the ToR) serves to estimate future demand
- The "*TRACECA Legal Framework and Regulatory Framework*" as well as "*Trade Facilitation, Customs Procedures and Freight Forwarding*" and "*Forwarding - Multimodal Transport Systems*"
- The "*Human Resources Training*" and the "*Human Resources Training - Maritime*".

Furthermore, a couple of "Hardware Projects" is underway and/or envisaged, dealing with various aspects of maintenance, infrastructure, rolling stock, terminals, ports, etc. Also the results of these projects will be considered as far as they are available.

One of these "Hardware projects", namely "Railway Pre-investment Study and Pilot Train Baku - Tbilisi - Batumi - Poti / Bridge over Kura River" at present is carried out by the consortium TEWET/DE-Consult. This project will have as one result a pre-investment study to determine the requirements for rehabilitation of the main Trans-Caucasian rail route. Due to this fact the consortium already has collected considerable experience in the area to be investigated, both from the technical and operational aspects and from the geographical side so that the consortium can build on these experiences.

On the other hand it might well be that the results of the project on offer will influence the results and findings of the parallel project. So from our point of view it seems strongly advisable to have a continuous exchange of information between the various projects as to avoid parallel works. A first step in this respect will be the meeting scheduled for end of February.

The Project Manager is responsible for the conduct of the project both within and without the TRACECA region and will co-ordinate the work of this project with that of others in the transport sector and involving trade facilitation.

The three Deputy Project Managers will be responsible for the project and administration in the three capitals, Baku, Tbilisi, and Yerevan.

The members to the team work in their specific work packages in all three countries. This guarantees a uniform, technical standard in the realisation of the project. In order to determine co-ordinated objectives workshops will be organised, taking also into account psychological aspects in the solving of conflicts.

Local experts will be included strongly in all components of the project.

Following negotiations with the co-ordinating units for the TACIS programme and first contacts with possible local partners, experts will be available for this collaboration representing the railways of Azerbaijan, Armenia, and Georgia, and also the Ministries of Transport and Economics of the countries concerned.

The required co-operation in the individual work packages within the framework of the planned budget (compare 'Financial Proposal') will be conducted at the beginning of the project and will be handed over for approval to the bodies involved with the Inception Report.

In order to maintain the permanent contact with local sub-contractors and organisations, project offices are to be set up on location for the duration of the project processing. These offices will be staffed by the Deputy Project Managers or experts of the Consultant, and in their absence by local experts.

A strict project organisation will ensure the outputs of the work packages to serve as inputs for subsequent work packages.

The processing of the four streams shall be done simultaneously, taking into account the connections between the individual work packages.

As a special form of the project work the formation of an 'Advising Committee' is planned which will have advisory functions regarding the investigations. For this purpose, competent experts from railway administrations, economy, and science could be engaged.

Envisaged members to the committee:

- | | |
|-----------------------|---|
| - Dr. Lenke | Member of the Board for the Development of the DBAG Group (German Railways) |
| - Professor Burghardt | Technical University Dresden; business management, staff management |
| - Professor Legat | German Federal Ministry of Transport; section railway |
| - Mr Remmert | Group Representative of DBAG Berlin |
| - Mr Weiß | Managing Director of PBDE |
| - Mr Kolley | Expert in traffic law. |

B.2.3

Approach and Methodology

Main objective here is to propose viable solutions both for the infrastructure and for the Operating Company.

Regarding the infrastructure, it is assumed that it will be state-owned and that its further extension will be subject to the sovereignty of the respective states. Therefore, in this case an interstate solution will have to be found. Works under the first two work streams therefore refer to the establishment of an international co-operation between the three railway administrations in order to develop the network infrastructure. It is assumed that mainly those parts of the network's infrastructure will be investigated which will be required on the transit routes. The diagram below shows Main Railway Transport Corridors.

Co-ordination of the plans regarding the development of the infrastructure has to be done with the respective governments or railway administrations of the countries, which will be done with the help of the respective Deputy Project Managers.

With regard to its contents, the basis for the work of this international / regional organisation will be the strategy for the development of the infrastructure. The results will be submitted, together with a proposal on a master plan and an investment plan, this latter one containing the results of the deficiency analysis. Continuous inclusion of the local experts in this process shall ensure that the proposals will be widely accepted even before the Draft Final Report is submitted.

By this procedure the separation between network administration and network operation and discrimination-free access, as determined by the EU, can be reached. At the same time, this international / regional authority will market the railway infrastructure and thus in part ensure the recapitalisation of the investments necessary for the development of the infrastructure.

The second part of the project proposal refers to the creation of a joint venture, forming the service centre for the transport customers.

In the initial phases of the project, we will start by proposing low-key joint venture scenarios which would not be dismissed from the very beginning at political level. So these proposals should be based on the "lowest common denominator", the technical and economic justification being obvious. Having reached agreement on those, more ambitious proposals could be brought forward with the objective to test the limits of consensus of the governments involved.

The investigations as to the Trans-Caucasian Railway Service Centre are oriented towards the creation of a mixed, state/private, international enterprise which plans and realizes transport on the basis of own transport means, by way of leased appropriate transport capacities, and by using the railway infrastructure, and which puts at disposal all logistic information.

The investigations on marketing are based on the investigations to be made within the framework of the project regarding the development of transport requirements in the specific region. Main emphasis here has to be laid on international and regional/international transports of the east-west relation and the north-south relation. Here, also, there will be a co-ordination with the corresponding projects. The multi-modal approach (railway, sea / ferry transport) is chosen.

Though the investigations will mainly concentrate on freight traffic, options regarding marketing and offers in passenger traffic will also be developed. Here, also, the focal point will be international connections, where high-class offers and services in terms of quality are to be put at disposal.

Starting from the varied financial, organisational, and legal situation of the three countries' railway administrations and of the ports of the Caspian Sea and the Black Sea, the investigations on ferry transport and sea transport are being carried out separately. For these fields, joint venture solutions will be developed. Indispensable in this approach will be the respective participations of the countries and all-institutional capital participations.

All proposals are being made subject to the development of the political climate and of the capital market.

The contents of the main work packages of the structure plan is described below.

