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EDITORIAL

As it has been some years since this journal published an issue devoted to the transportation problems of developing countries we have decided to publish an issue on the latest developments in this field. It is always a major undertaking to coordinate such an issue since the journal wants to represent different views and discuss different modes of transport in different parts of the world.

We envisaged publishing articles on transportation issues in a wide range of developing countries, but as it turns out, most articles are about Africa, as this continent is suffering badly from a lack of adequate transportation.

The articles by Njuguna and Virag deal with similar issues but are written from different points of view. Njuguna describes the problems of Africa from a training point of view, emphasizing that the transport sector has a serious shortage of qualified staff in the fields of middle management and operational management. Virag on the other hand takes the United Nations Transport and Communications Decade in Africa as his main theme.

The Netherlands Ministry of Foreign Affairs, which is responsible for development cooperation, is very involved in transportation issues of developing countries. We are therefore grateful that the Minister for Development Cooperation, who is attached to that Ministry, was willing to write a foreword to this issue.

FOREWORD

Transportation plays an important role in the development assistance which the Netherlands provide to the Third World. This is for two reasons. In the first place it is because transportation is a sector which is very important in the development process. The availability of transport makes it possible to trade excess production and so produce for the market. If trade is possible, then individuals or countries are able to specialise in the production of goods in which they have a comparative advantage. This specialisation, in turn, leads to improved productivity and thus to economic development. In a similar way local passenger transport contributes to economic and social development (mobility of labour, communication), whilst it also has an effect on welfare.

Apart from being a condition for and a contributor to economic development, transport is also essential in the event of natural calamities such as those we have witnessed recently in Sudan and Bangladesh. In the past, lack of transport has been responsible for the loss of many lives in developing countries.

The Netherlands receive many requests for assistance in the field of transportation. This is not only because of the need for transport facilities in developing countries but also because of the expertise which the Dutch possess in this sector, as developing countries are well aware. This strength stems from a long transport tradition, long experience of transshipment operations (making Rotterdam the biggest port in the world) and, in general, our outward-looking attitude.

The need for assistance combined with the expertise of the Dutch in the field explains the importance of transportation in development assistance. About 12 per cent of the money spent goes to transportation and communication, mainly to India, Indonesia and the Beira Corridor in Mozambique. In India the main focus of co-operation is a ten-year plan to modernise the dredging sector and to dredge sea-ports so that the growing volume of imports and exports can be loaded and unloaded there. Various other projects are also in progress: for example, research is being performed on ways of making the Ganges more viable as a route for inland shipping.

Activities in aid of the Beira Corridor are being undertaken in support of the efforts of the Southern Africa Development Coordination Conference

(SADCC) to make the front line states less dependent on South Africa. The activities comprise management and material support for the rehabilitation of the port of Beira in Mozambique, the Beira Corridor itself and the Malawi/Northern Corridor link.

As regards Indonesia, mention may be made of the introduction of a telecommunications programme in Java, the construction of railway bridges and assistance with container handling cranes. Mention should also be made of technical assistance in ports, dredging, transport planning in general and training as carried out in co-operation with ESAMI (the Eastern and Southern African Management Institute).

Since transportation is so important in the Dutch assistance package it will come as no surprise that I greatly appreciate the decision by the editorial board of the 'Tijdschrift voor Vervoerswetenschap' to devote a special issue to transportation matters in developing countries. I hope the articles contained in this issue will increase understanding of the role of transportation in development among those with a professional interest in the subject and decision-makers.

The Minister for Development Cooperation
Drs. P. Bukman

TRANSPORT AND THE ENVIRONMENT WORLD BANK POLICIES AND EXPERIENCE

Ian Heggie*

Abstract

Transport and the environment; World Bank policies and experience

Most of the World Bank's transport projects have typically been concerned with renewing, improving and marginally expanding existing infrastructure (or with providing transport equipment) and have rarely created measurable disturbances to the environment. There are occasions, however, when transport projects can raise important environmental issues which need to be taken into account in the selection, design and evaluation of transport projects. The Bank's general environmental policies concentrate on ensuring that Bank projects are designed and implemented according to sound environmental principles which minimize adverse impacts on the environment and enhance beneficial ones; they also aim to assist the agencies dealing with environment in the Bank's developing member countries to strengthen their institutional capacity. The major environmental impacts encountered in transport projects include disruption of land-use patterns, severance of communities, pollution, damage to marine and other natural resources, spread of disease (by construction workers), damage to flora and fauna, and disruption of indigenous populations. Problems in these areas can usually be addressed by proper design, adequate documentation, special attention to construction activities, and efforts to strengthen local environmental institutions.

Responsibility for dealing with environmental issues rests with the Bank's regional transport staff, supported by regional environmental units. Such staff attempt to strengthen environmental institutions in the Bank's developing member countries and operationalize the Bank's other environmental objectives by: (i) identifying potential adverse impacts (assisted, as necessary, by formal and informal operational guidelines); (ii) formulate remedial measures; and (iii) reflect these remedial measures in project design and in project documentation. Implementation of such measures are often made conditions of project appraisal, etc. However, this is only suited to certain types of remedial measures and is generally reserved for dealing with institutional issues. Another way of dealing with remedial measures is by writing them into loan documents as covenants. This is not a satisfactory way of dealing with environmental issues, unless the covenant is accompanied by clear guidance defining what remedial measures are intended and how they are to be applied. The commonest method of specifying which environmental considerations are to be taken into account and how they are to be reflected in the project and its implementation arrangements, is by writing specific provisions into design briefs and Terms of Reference for consultants. These provisions can also be cross-referenced in the loan documents as covenants.

Environmental considerations are receiving increased attention in Bank projects. Bank staff currently attach most importance to ensuring that projects financed under Bank Loans are designed and implemented according to sound environmental principles.

Future policy will continue to emphasize this objective, but is likely to increasingly focus on strengthening local environmental institutions.

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The author thanks Bernard Baratz and John Blaxall for commenting on an earlier draft.

INTRODUCTION

1 Most of the World Bank's transport projects have typically been concerned with renewing, improving and marginally expanding existing infrastructure facilities – or with providing equipment for railways, ports and road authorities – and have rarely created measurable disturbances to the environment. However, there have been occasions when such projects could have led to adverse environmental impacts which had to be taken into account in the selection, design and evaluation of these projects. The following paper summarizes the Bank's general policy on environment and outlines how it influences the Bank's transport sector operations.

GENERAL BANK POLICY ON THE ENVIRONMENT

2 During the late 1960's and early 1970's it became apparent that economic development often had damaging effects on the natural environment, reducing its capacity to sustain long-term development and threatening human health and welfare. It was accepted, however, that modifications to the natural environment were needed to achieve social and economic progress and thereby to alleviate poverty and improve human welfare. The close link between sustainable economic development and sound environmental management was recognized during the deliberations of the 1972 United Nations Conference on the Human Environment. The Conference, recognizing that economic development may itself create environmental problems, concluded that developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment. The Conference also noted that states should ensure that international organizations play a co-ordinated, efficient and dynamic role for the protection and improvement of the environment.

3 The Bank showed early concern for the environment and to this end created the post of Environmental Adviser in late 1970 with a mandate 'to review every project for its consequences to the environment'. In 1973 the Bank expanded these activities by creating the Office of Environmental Affairs, subsequently renamed the Office of Environmental and Scientific Affairs (OESA), which acted as a Project Advisory Unit. As such, OESA provided advice to operational staff and reviewed all projects as the draft report stage to ensure that the environmental aspects of each project were effectively dealt with.

4 In 1980 the Bank further strengthened its commitment to promote sound environmental policies by signing the Declaration of Environmental Policies

and Procedures Relating to Economic Development (attached as Annex I).[1] This document effectively committed the Bank to attempt to promote environmentally sound economic development by pursuing five broad policies:

(i) instituting procedures for systematic examination of all the Bank's development activities – including policies, programmes and projects – to ensure that appropriate measures were proposed to minimize possible environmental problems;

(ii) co-operating with governments and other organizations to ensure that appropriate environmental measures were incorporated in the design and implementation of economic development activities; in this connection, also to provide technical assistance to develop the capacity of member countries to plan and manage their own environment;

(iii) giving consideration to project proposals that were specially designed to protect, rehabilitate, manage or otherwise enhance the human environment and the quality of life;

(iv) supporting the training and further education of the Bank's operational staff in the environmental aspects of economic development;

(v) initiating, and co-operating in, studies leading to improvement of project appraisal methodologies and preparing and disseminating documentation and other material to provide guidance on the environmental aspects of economic development.

5 The Bank staff responsible for implementing the above environmental policies interpreted environmental concerns as those pertaining to the natural and social conditions surrounding all organisms, particularly mankind, and including future generations. The principal adverse environmental effects they focussed on included water and air pollution, soil erosion, deforestation, damage to unique sites and habitats (especially for endangered species) and damage to mankind's aesthetic and cultural heritage. They divided their time between screening Bank projects to assess potential environmental impacts and advising operational staff on necessary remedial measures to minimize such impacts; helping to formulate technical assistance and loan projects to support environmental improvement in member countries; assisting with project supervision; and preparing guidelines for use by operational staff. Where possible, such staff also attempted to promote better management of renewable resources (e.g.

fisheries and forestry), recycling of waste materials, and improvement of occupational health and safety.

6 To further strengthen the attention given to environment, the Bank issued guidelines in 1984 outlining the policies and procedures to be followed by staff dealing with projects having environmental implications. The principles behind the guidelines are summarized below.
The Bank:

(a) endeavors to ensure that each project affecting renewable natural resources does not exceed the regenerative capacities of the environment (for example, livestock projects should prevent overgrazing, forestry projects should prevent overcutting, and agricultural projects should prevent unsustainable rates of soil erosion);

(b) will not finance projects that cause severe or irreversible environmental deterioration, including species extinctions without mitigatory measures acceptable to the Bank;

(c) will not finance projects that unduly compromise public health and safety;

(d) will not finance projects that displace people or seriously disadvantage certain vulnerable groups without undertaking mitigatory measures acceptable to the Bank;

(e) will not finance projects that contravene any international environmental agreement to which the member country concerned is a party;

(f) will not finance projects that could significantly harm the environment of a neighboring country without the consent of that country;

(g) will not finance projects which would significantly modify natural areas designated by international conventions as World Heritage sites or Biosphere Reserves, by national legislation as national parks, wildlife refuges, or other protected areas; and

(h) endeavors to ensure that projects with unavoidable adverse consequences for the environment are sited in areas where the environmental damage is minimized, even at somewhat greater initial costs.

7 Finally, as part of the reorganization of the Bank undertaken in 1987, the Bank's environmental staff were strengthened by the creation of both a new central Environment Department (consisting of two divisions for Environmental Systems and Technology, and Environmental Operations and Strategy), with about 30 staff and consultants in total, compared to the

five environmental staff previously deployed by OESA; and environmental units in all four of the Bank's Regional offices (Africa, Asia, Latin America and Caribbean, and Europe Middle East and N. Africa), together containing about 30 further staff and consultants. The central Environment Department is responsible for developing policies and offering advice to the regional offices; the regional environmental units focus on the environmental impacts of projects and deal with country-specific environmental issues;

8 During 1987, following publication of the Brurdtland Commission[2], the Bank decided to shift the emphasis in its environmental work away from the environmental impact of individual projects, towards an emphasis on dealing with environmental issues as part of overall economic policy. This meant that environmental management issues had to be integrated into economic policy-making at all levels of government and that, while continuing to address the environmental consequences of individual projects, the Bank would be equally concerned to develop policy interventions to influence environment-related behaviour on a large scale. One of the ways it operationalizes this new policy emphasis is by preparing environmental issues papers which, among other things, review the nature, importance and causes of environmental problems and consider general strategies for designing policies and investment programmes to address these problems. The environmental issues papers thus define the framework within which individual sector projects are now formulated.

POTENTIAL ENVIRONMENTAL IMPACTS OF TRANSPORT PROJECTS

9 Since the Bank's environmental concerns cover both the natural and social conditions surrounding all organisms, the environmental impacts of transport projects need to be examined in terms of their: (i) direct physical impacts (i.e., their effects on noise levels, air and water quality, soil erosion, flora and fauna, etc.); and (ii) indirect impacts, often socio-economic and/or cultural (i.e. their effects on settlement patterns, tribal organization, commercial outlook, etc.). In this connection, environmental impacts are generally classified as the inadvertent outputs of the project, i.e. those impacts which the project does not normally include among its intended benefits and costs. Both the above impacts can be important and are discussed separately below.

10 The major environmental impacts likely to be encountered in transport projects are listed below. The list is neither exhaustive, nor does it attempt

to show the kind of impacts likely to affect each and every transport project; it merely indicates the sort of impact that might be encountered in practice.

(i) ***Direct Impacts***

(a) *Land-use patterns.* New facilities, and significant expansion or improvement of existing ones, nearly always have a significant impact on existing land-use patterns. This generally involves land acquisition, together with demolition of property and resettlement of displaced persons.[3] The property may furthermore include historic structures, or other buildings of cultural and aesthetic importance. In addition, improved access usually affects the usage of land and its value (e.g., agricultural land converted to commercial uses) and it is important to ensure these impacts are compatible with long-term plans for development of the area's natural resources.

(b) *Severance.* Major transport corridors may sever communities, disrupting established trading patterns and breaking social ties. Even relatively minor facilities may interfere with traditional movement patterns and migratory animal routes and can increase vehicle-pedestrian conflicts. Such severance is particularly important when transport corridors cross game reserves and national parks.

(c) *Access.* New roads can open up fragile ecosystems to unplanned settlers and this can have far-reaching consequences for natural resource management and the spread of disease.

(d) *Noise, air and water pollution.* New airports and urban roads typically generate noise, vehicle exhaust emissions may contribute to urban air pollution, while facilities handling bulk materials like fertilizer, phosphate rock and sulphur may lead to air and water pollution. Lead-based paint on bridges and other steel structures can likewise lead to water pollution, while transport related activities like operation of an asphalt plant, may contribute to air and water pollution.

(e) *Marine resources.* Dredging and harbor works can have a significant impact on the coastal current regime, on coastal and marine erosion and on marine flora and fauna. In highly polluted harbors, the dredging spoil may also have toxic properties. The same applies to similar works on inland waterways.

(f) *Drainage.* Earthworks, retaining structures and culverts may affect erosion, local drainage and run-off patterns, and cause pollution of nearby water resources (transport projects rarely affect large-scale watershed management). Earthworks also affect slope stability and this may result in landslides.

(g) *Solid and liquid waste disposal.* Disposal of workshop waste, the run-off from vehicle washing facilities, and the waste from ships may lead to pollution of local water resources. The disposal of waste produced when facilities are rehabilitated may likewise cause water pollution and can also be unsightly.

(h) *Visual pollution.* Transport facilities may be unsightly or incompatible with existing structures; landscaping, tree planting and other measures may be an appropriate way of improving visual appearance.

(i) *Working conditions.* The civil works associated with Bank projects – together with the workshops, ship repair facilities, etc., financed under such projects – offer numerous opportunities for improving working conditions, if only by requiring all work to comply with national labor codes and/or health and safety regulations.[4]

(ii) ***Indirect Impacts***

(a) *Spread of disease.* It is often not appreciated that the presence of construction workers – and of potential new settlers in areas opened up by new transport facilities – may contribute to the spread of insects, pests and contagious diseases (see § 12 below).

(b) *Flora and fauna.* On some occasions transport facilities improve access to fragile ecological zones, or to areas containing endangered species of flora and/or fauna.[5] At a more mundane level, improved access may also facilitate illegal logging and hunting.

(c) *Socio-cultural impacts.* New, or substantially improved transport facilities can have both positive and negative impacts on indigenous populations: on the one hand, the fragile culture and tribal organization of indigenous people may conflict with the customs and ideas of new settlers and administrators[6], while, conversely, the exchange of ideas associated with improved access may improve farming practices, public health and other important socio-economic attributes.

CAUSES OF ENVIRONMENTAL PROBLEMS IN TRANSPORT PROJECTS

11 Before outlining the approach Bank staff are advised to take with regard to the environmental analysis of transport projects, it is worth examining the sort of instances where potential adverse impacts might be overlooked, leading to subsequent environmental problems during implementation and/or operation of the project. Such problems can arise, among other

things, due to design defects, poor project documentation, the presence of construction activities in an area, or weak environmental institutions.

(i) *Design defects.* This occurs when adverse impacts are not anticipated and necessary remedial measures are omitted from the project design. An example might be the dust nuisance associated with bulk handling facilities at a port. A number of products: cement, fertilizer, beneficiated phosphate rock, etc, can create a great deal of dust, particularly when they are being unloaded from rail cars and trucks, or being discharged from conveyors into storage sheds. Unless there is some form of shielding and dust extractors are fitted to unloading hoppers, conveyor tunnels and storage sheds, a great deal of dust may be created. When a port without such facilities is working, it is not uncommon to find a dust plume drifting 2–4 km downwind of the loading facilities. This can create severe dust nuisance in nearby residential and recreational areas and – particularly with fertilizer – can create additional problems with nearby marine and water resources. The solution in such cases is to design the facilities to deal with the dust nuisance. If this is overlooked, and facilities have to be retrofitted with dust extractors, it will cost significantly more than if they had been included in the initial design.

(ii) *Poor project documentation.* Unless the proposed remedial measures are incorporated as clear instructions in project documents (for example, in Terms of Reference for consultants designing facilities and supervising project implementation, or in contract documents covering construction of project facilities), the remedial measures may not be properly implemented. This could result from use of standard contract documents which failed to take account of the special circumstances under which they were to be applied. For example, standard contract documents on road projects often include specifications requiring the contractor to 'cut and dispose of spoil within the transversal profile', or to 'carry surplus material to spoil'. Such specifications do not normally create problems, but when applied in steep, mountainous terrain – particularly when the hillsides are terraced and intensely cultivated – simply dumping all spoil over the edge of the road formation can have devastating results.

(iii) *Presence of construction activities.* The environmental impact of construction activity itself is often overlooked. Temporary site works are typically characterized by borrow pits, puddles, vehicle ruts and drainage ditches and these provide ideal breeding grounds for insects (particularly mosquitos). Construction workers may kill local fauna for the pot, while the canteen refuse normally associated with construction camps encourages the proliferation of vermin. Indeed, construction camps often lead to a significant

increase in disease carrying insects and vermin; it is a common observation in the tropics that undisturbed forest is relatively insect free, while human habitations are commonly infested. One of the most serious diseases spread by construction crews is malaria. Other communicable diseases spread by them include: diphteria, poliomyelitis, tetanus, typhoid and paratyphoid. Meningitis, hepatitis, and leptospirosis are also causing concern and there are many undescribed or little known diseases, particularly mycoses and viroses, which may also be spread by construction workers. These inadvertant impacts can generally be avoided by ensuring appropriate remedial measures are included in the contract documents. The documents need to specify good drainage practices (for borrow pits, etc.), suitable sanitation and refuse disposal facilities at construction camps, routine treatment for malaria (screening and elimination of mosquito larvae in puddles, etc.) and immunization of construction workers.[7]

(iv) *Weak environmental institutions.* A number of remedial measures rely for their success on the effectiveness of local environmental institutions: for example, for administration and enforcement of public health regulations. When these agencies are ineffective, even the best prepared project may lead to environmental problems. For example, when new roads are being constructed in undeveloped areas it is fairly common to withhold Bank-financing until each project has been cleared by the local environmental planning agency. Alternatively, particularly when there are concerns about the spread of disease, the project documents might require the borrower to control ponding on borrow pits (to prevent spread of malaria) and may also include specifications requiring the contractor to comply with various other measures to reduce health hazards. However, such provisions and health regulations will only be effective if the local environmental agency has the skills, manpower and authority to require the contractor to comply with these requirements. Unfortunately these agencies are often weak, inexperienced and underfunded and the best of intentions expressed in the project documents might have minimal impact on the final out-turn. When the performance of local environmental institutions significantly affects project implementation it must be evaluated before the project is implemented and, when there are weaknesses, these must be attended to before the project is approved.

IMPLEMENTING THE BANK'S ENVIRONMENTAL POLICIES

12 Responsibility for applying sound environmental policies rests with the Bank's regional transport staff, supported by the regional environmental

units which prepare the environmental issues papers within which regional staff apply these policies (see § 8). In carrying out these responsibilities, they are urged to pay special attention to the two items in the Declaration of Environmental Policies and Procedures (see § 4) which are most relevant to the Bank's field operations:

(i) ensure that Bank projects are designed and implemented according to sound principles which minimize adverse impacts on the environment and enhance beneficial ones; and

(ii) assist agencies dealing with the environment in the Bank's developing member countries to strengthen their capacity to review and formulate environmental policies and to plan and manage their own environment.

These objectives are implemented in three stages, by: (i) identifying potential impacts; (ii) formulating remedial measures; and (iii) reflecting them in the project design documents and ensuring they are complied with during project implementation.

13 However, before discussing application of this approach, it is desirable to mention the second of the above objectives, namely, strengthening environmental institutions. One of the best ways of helping these institutions is by establishing regular liaison with them. Most developing countries have one or more agencies dealing with the promotion and enforcement of environmental laws and legislation, advising planning ministries on the environmental aspects of projects, or are part of line-agencies discharging specific environmental responsibilities (e.g., implementing local building regulations, health and safety at work, management of water quality, management of forest land, etc.). These groups generally operate under constitutional, legislative, or other legal provisions and the contact established between Bank staff and these agencies – and between them and executing agencies – helps to strenghten them by emphasizing their existence and involving them more closely in the preparation and approval of projects. This is particularly important when the above provisions include the need to hold public consultations.

14 While dealing the institutions responsible for the environment in the Bank's developing member countries, weaknesses are often identified which could be dealt with as part of a Bank project. Such weaknesses may relate to the need for specialized training (e.g., in environmental impact assessment), assistance in recruiting suitable staff, preparation of studies to explore options and possible solutions to environmental problems, examination of various policy options and quantification of their costs and benefits, provision of equipment for measuring and/or monitoring environmental im-

pacts, or – more fundamentally – to draft regulations and improve the administrative framework for dealing with the environment. Minor institutional strengthening components relating to the transport sector would normally be included in a transport project; more important components (e.g., regulation of road access to forest land and regulation of marine resources in respect of dredging) would normally be included in projects focussing on these sectors, or would be processed as free-standing technical assistance projects.

(i) ***Identifying potential impacts***

15 In most transport projects, identification of potential impacts need not go beyond an intelligent assessment – perhaps aided by a brief checklist – of the sort of impacts most frequently encountered in practice. To assist operational staff in this process the Bank has issued brief checklists of potential transport impacts (Fig. 1 shows those issued for highways and ports) which are currently being expanded into full-scale guidelines. In addition, certain of the Bank's Operational Manual Statements (OMSs) – which are restricted internal Bank guidelines – and Operational Policy Notes (OPNs) provide guidance to help operational staff identify potential environmental problems (Fig. 2 summarizes the main OMSs and OPNs relevant to formulation of transport projects); while OPN 11.2 lists, in Annex II, tropical wildlands and tropical aquatic areas of special concern, to alert Bank staff to the special problems likely to be encountered when formulating projects in these areas (these lists are shown in Fig. 3).

16 The identification of impacts is therefore dealt with on a fairly pragmatic basis. Formal guidance is provided through the medium of OMSs and OPNs, informal guidance is provided in the form of brief checklists (currently being expanded into guidelines) and these are supplemented by in-house training programmes designed to generally upgrade environmental skills among Bank staff.

(ii) ***Formulating remedial measures***

17 Most of the remedial measures needed to minimize adverse environmental impacts (or to enhance beneficial ones) require specific attention during the design of the project (for example, to ensure sound drainage practices), involve the addition of environmental components to the project (for example, disposal facilities for handling workshop waste), or require minor amendments to the contract documents (for example, to ensure proper use of weedicides for spraying roadside verges). In the case of projects with important social impacts, it may also be necessary to agree on regulato-

ry measures and enforcement arrangements, perhaps to prevent illegal logging, or to regulate the influx of new settlers into an area. In most cases, the design of remedial measures is straightforward; once the potential impacts have been identified they can be dealt with according to well-established procedures which are familiar to most Bank staff. In more difficult cases, operational staff request assistance from staff in the environmental units and draw on the written advice contained in the relevant OMSs and OPNs.

18 On some occasions – particularly when projects might have a potential for major adverse impacts – project preparation will involve a full environmental analysis. Indeed, in many countries such analyses are required under the country's environmental laws. It generally involves an environmental impact assessment, formulation of remedial measures (often in consultation with agencies and interests outside the transport sector) and presentation of the resultant benefits and costs – in both qualitative and quantitative terms – in the form of an environmental impact tableau.[8]

(iii) ***Reflecting remedial measures in the project***

19 Once Bank staff have identified the above remedial measures, they need to be reflected in the project documents, or in other appropriate instruments to ensure they are implemented. One way of doing this is by making implementation of the remedial measures a condition of project appraisal, approval, or disbursement. However, such conditions are only suited to certain types of remedial measures – generally actions that need to be taken before the project is implemented – and are usually reserved for dealing with institutional arrangements; for example, promulgation of regulations controlling access to forest areas opened up by agricultural penetration tracks.

20 Another way of dealing with remedial measures is by writing them into the loan documents as covenants (for example, requiring the borrower to give special attention to the possible impact on the environment of construction work on wharves and landing stages). Such covenants may not, by themselves, be a satisfactory way of dealing with environmental issues, since they depend for their effectiveness on the way concepts like 'special attention' and 'impacts on the environment' are defined and interpreted. In the case of financial covenants – which the Bank frequently uses to promote improved financial performance – this problem does not arise, since the concepts implicit in these covenants are defined in national and international accounting standards and their application is scrutinized during the Bank's appraisal mission. Environmental concepts are often not so clearly defined, so that environmental covenants – to be effective – must be accompanied by clear guidance on what the concepts mean and how they are to be applied. A more

effective and more common method of dealing with remedial measures is by writing specific provisions into design briefs and Terms of Reference for consultants, giving clear guidance to the borrower and their consultants on: (a) the specific considerations to be taken into account in the project design (for example, in relation to handling dust nuisance); (b) the special provisions which need to be reflected in contract documents (for example, with regard to disposal of spoil); and (c) the type of attention required during construction supervision. These provisions may then be cross-referenced in the loan documents in covenants requiring appropriate environmental considerations to be reflected in all terms of reference submitted for Bank approval. The key in such cases is to be clear, to give sufficient weight to environmental concerns in such Terms of Reference (and to monitor their implementation during project supervision), but at the same time to preserve a proper balance between these concerns and other aspects of the project (an example of such a Terms of Reference is shown in Figure 4).

CONCLUSION

21 Environmental considerations are receiving increased attention in Bank projects and this is reflected in the quality of the projects approved during the past few years. For example, the First Transport Project in the Seychelles recognized the significant environmental impact that major port works could have on the ecology of a small island. As a result, the potential impacts of dredging operations on the island's coral formations were dealt with by ensuring that tender documents incorporated provisions concerning the control and formation of the bunds to retain the dredged material and to deal with the discharge of run-off water. The Chiapas Rural Roads Project in Mexico likewise recognized the possible adverse environmental and social consequences of building rural access roads and provided that no subproject would be considered eligible for Bank financing until it had been cleared by the Secretariat for Urban Development and Ecology. The Multiproject Loan in Vanuatu (co-financed with the Asian Development Bank) similarly required that tender documents include provisions requiring the contractors to give special attention to the possible impact on the environment of construction work on wharves and landing stages.

22 However, even though Bank staff are systematically ensuring that projects financed under Bank loans are designed and implemented according to sound environmental principles, the Bank only finances a small part of the development programme in most countries and the long-term aim is to ensure that consistent environmental procedures are applied to the entire

development programme. This suggests that future Bank policy, while continuing to emphasize application of sound environmental principles to Bank projects, will increasingly need to concentrate on developing and strengthening local environmental institutions. Such strengthening is likely to cover establishing or revising environmental legislation, formulating regulations and quality standards, strengthening enforcement procedures, training staff in environmental planning and management techniques, and providing measuring equipment for monitoring and enforcement. In addition, there is a need for advice on pricing and cost-recovery issues to help regulate environmental impacts and finance the above monitoring and enforcement activities.

Notes

1. The Declaration was signed in February 1980 by the African Development Bank; Arab Bank for Economic Development in Africa; Asian Development Bank; Caribbean Development Bank; Inter-American Development Bank; World Bank; Commission of the European Communities; Organization of American States; UNDP; and United Nations Environment Program. The European Investment Bank became a signatory in April, 1983.
2. World Commission on Environment and Development, *Our Common Future*, O.U.P., Oxford and New York, 1987.
3. The Bank has issued specific guidelines to staff outlining the policy to be applied to such projects, the procedures to be used when preparing and appraising resettlement schemes, and the conditions which the Bank expects borrowers and the resettlement agencies to meet.
4. Practically all the Bank's developing member countries have some type of written code governing these activities.
5. The Bank has issued detailed guidance to staff on how to deal with these impacts, which includes a list of twenty tropical wildlands and nine tropical aquatic areas of special concern.
6. The Bank has provided detailed guidance to staff on the factors to be taken into account when dealing with such projects.
7. GOODLAND R.J.A. and IRWIN H.S., *Green Hell and Red Desert*, Elsevier, New York, 1975.
8. See, for example, *Trunk Road Proposals – A Comprehensive Framework for Appraisal, H. M. S. O.*, London, 1979.

ANNEX I

Declaration of environmental policies and procedures relating to economic development*

Recognizing that, the major environmental problems of the developing countries are not necessarily of the same nature as those of developed countries in that they are problems which often reflect the impacts of poverty which not only affect the quality of life but life itself;

and whereas, economic development is essential to the alleviation of major environmental problems by providing for an integral relationship between societies and their environment;

* The Declaration was prepared by the United National Envornment Programme.

realizing also that such economic development should be pursued in such a matter as to avoid or minimize environmental problems peculiar to it;

convinced, that in the long run environmental protection and economic development are not only compatible but interdependent and mutually reinforcing;

acknowledging, that the need for environmentally sensitive and responsible development has become more important and urgent in the light of increasing population and concomitant pressure on the earth's resources and life supporting ecological systems in some areas;

acknowledging, the sovereign right of governments to determine their own priorities and development patterns;

recalling, that the States which adopted the Declaration of the United Nations Conference on the Human Environment (Stockholm, 1972) stated their common conviction (Principle 25) that they will ensure that the international organizations play a co-ordinated, efficient and dynamic role in the protection and improvement of the environment;

considering, furthermore, that international development assistance institutions have, along with their member governments, a responsibility to ensure the sustainability of the economic development activities financed by them;

therefore, the undersigned declare that they:

I

Reaffirm their support for the Principles and Recommendations for action of the United Nations Conference on the Human Environment.

II

Will, to best of their abilities, endeavour to:

1 Institute procedures for systematic examination of all development activities, including policies, programmes and projects, under consideration for financing to ensure that appropriate measures are proposed for compliance with Section I above.

2 Enter into co-operative negotiations with governments and with concerned and relevant organizations and agencies to ensure integration of appropriate environmental measures in the design and implementation of economic development activities.

3 Provide technical assistance, including training, on environmental matters to developing countries, at their request, thus developing their indigeneous capacity, and facilitating technical co-operation between developing countries.

4 Give active consideration to project proposals that are specially designed to protect, rehabilitate, manage or otherwise enhance the human environment, the quality of life, and resources thereto related.

5 Institute and/or otherwise co-operate in research and studies leading to improvement of project appraisal methodologies, including cost-benefit analysis, of environmental protection measures.

6 Support the training and informing of operational staff in the environmental dimension of economic development.

7 Prepare, publish and disseminate documentation and audiovisual material providing guidance on the environmental dimension of economic development activities.

ANNEX II

Fig. 1. *Brief checklist of potential impacts to be considered when formulating road and/or port projects*

TRANSPORTATION SECTOR

Checklist of issues to be considered when formulating transport projects

A. Highway Sub-Sector

1. New Roads

(i) Ensure that the settlements (both planned and unplanned) facilitated by the project are regulated with regard to deforestation, agricultural practices and public health.

(ii) Ensure right-of-way is selected to minimize damage to the natural environment (including landslide areas and high cut-and-fill sections), the aesthetic environment (including special trees), historic/cultural/aesthetic artifacts, and fisheries or other aquatic resources (it may be desirable to prepare environmental resource maps to help in the selection of suitable alignments).

(iii) Ensure that relevant government agencies consider the project's likely impact on indigenous tribal groups and that such agencies are fully involved in the design, implementation and monitoring of the project.

(iv) Ensure the project is appropriately landscaped (where necessary), that borrow pit location is regulated (as needed) and exposed areas are resurfaced/replanted to prevent erosion and siltation.

(v) Ensure drainage is designed to avoid erosion and siltation (it can often be designed to reduce erosion) and does not contaminate local watercourses.

(vi) Ensure the size and position of billboards are regulated to minimize visual intrusion and avoid safety hazards.

(vii) Ensure the project does not produce unacceptable levels of noise, vibration, or air pollution (e.g. dust from unsurfaced roads, from exhaust emissions, from asphalt plants, or blown from open vehicles).

(viii) Ensure special routes are designated for movement of hazardous materials.

(ix) Ensure measures are considered to ensure pedestrian safety, particularly where major roads pass through villages and towns.

(x) Ensure roads passing through game reserves, natural parks and other scenic areas do not disrupt the ecological balance of these areas and/or impede the free movement of animals.

2. Road Maintenance/Rehabilitation (including workshop construction/rehabilitation)

(i) Ensure waste material (including broken-up pavement surfacing) is recycled, or disposed of in a way that does not lead to aesthetic, or other environmental problems.

(ii) Ensure workshops (including washing facilities) to be constructed/rehabilitated under the project, incorporate measures for dealing with contaminated run-off and liquid/solid waste (particularly diesel and oil waste).

B. Ports Sub-Sector

1. New Ports

It will usually be desirable to undertake some form of environmental impact assessment as part of the initial feasibility studies and to design the project to minimize adverse impacts. Remaining impacts, where significant, may be presented in the form of an impact tableau annexed to the project documents.

2. Existing Ports (rehabilitation and/or expansion)

(i) Ensure that the project forms part of a compatible development of the port hinterland and that land is appropriately zoned for port-related and other uses (if there is no port area master plan, consider financing the preparation of one under the project).

(ii) Ensure that the project is designed to minimize displacement of port-related commercial activity (which usually surrounds the port area) and involuntary resettlement of the local population (resettlement — even of squatters — calls for careful attention).

(iii) Ensure that port access and major linkages to the hinterland, are designed to minimize — and provide acceptable levels of — congestion, noise and air pollution. Transport corridors linking the port with its hinterland should avoid severing local communities.

(iv) Ensure that all structures to be constructed, or modified below high water level (breakwaters, groynes, sand/silt traps and borrow areas; piled structures, jetties, piers and reclaimed land; dredged channels and turning basins; and outfalls — sewerage, storm water and cooling water) are designed to be compatible with the existing marine (or freshwater) environment. If the resulting impacts are likely to be significant, they should be evaluated (preferably by an independent organization) and the results of the evaluation should be approved by all interested parties before proceeding with the project. The evaluation should include studies of: accretion/siltation/erosion, impacts on marine flora and fauna, tidal streams/ocean currents/circulation, and water quality/temperature/oxygenation.

(v) Ensure materials from maintenance and capital dredging are disposed of in an acceptable manner in accordance with national and international codes*. Where such codes are not applicable, consideration should be given to evaluation and consultation on the same basis as (iv) above.

(vi) Ensure adequate precautions are taken to prevent dust from bulk handling facilities (e.g. fertilizer, phosphate rock, etc.) contaminating nearby water and marine resources, or human settlements.

(vii) In the case of bulk petroleum handling facilities, ensure there are contingencies for handling fuel spills.

* Inter-governmental Conference on the Convention on the Dumping of Wastes at Sea (1972: London), International Maritime Organization; Ports and Dredging in the Developing Countries: Port Safety, Environment and Construction Committee, (1972: Canada), International Association of Ports and Harbors. Most countries have these codes, since copies have been sent to them for ratification.

Fig. 2. *Summary of the main OMSs and OPNs relevant to formulation of transport projects*

OMS 2.33, 1980: Social Issues Associated with Involuntary Resettlement in Bank-Financed Projects

Scope – may apply to new ports, canals, highways (para. 3)

Policy – aim is to enable displaced people to regain their previous standard of living and, as far as possible, to be economically and socially integrated into their new community

Action – offers detailed guidance

OMS 2.34, 1982: Tribal People in Bank-Financed Projects

Scope – is particularly important in the case of new rural roads

Policy – the Bank does not assist projects that knowingly encroach on traditional territories occupied by tribal people, unless adequate safeguards are provided

Action – remedial measures are best designed before or during project preparation and will usually require pre-investment studies employing qualified indigents

OPN 11.02: Wildlands: Their Protection and Management in Economic Development

Scope – relevant to construction of roads, railways, or canals which penetrate wildlands, improving access and facilitating spontaneous settlement; modifying rivers to improve navigation; and dredging and filling coastal wetlands for port projects

Policy – the Bank's policy is to seek a balance between preserving the environmental values of the world's most important remaining wildlands and converting some to more intensive use

Action – lists twenty Tropical Wildlands of special concern and nine significant Tropical Aquatic areas

– offers detailed guidance on how to design Wildland Management components in projects affecting such areas

OPN 11.03: Management of Cultural Property

Scope – covers sites having archaeological, paleontological, historical, religious and unique natural values

Policy – Bank policy is to assist in their preservation and to avoid their elimination

OPN 10.08: Treatment of Involuntary Resettlement

Scope – the OPN reviews experience with application of OMS 2.33 and concludes that it has not been satisfactory and that design of settlement schemes needs to be improved: (i) borrowers need to improve preparation; (ii) more attention needs to be given to land and employment strategies for displaced persons; and (iii) Bank supervision must be strengthened

Action – includes improved guidance

Fig. 3. *List of tropical wildlands and tropical aquatic areas of special concern*

*SOME TROPICAL WILDLANDS OF SPECIAL CONCERN**

Eastern Africa

1 Madagascar: significant proportions of the northern and eastern moist forests.
2 Ethiopia: much of the remaining highland forest.
3 Tanzania: Usambara, Pare, and Uluguru Mountains.
4 Rwanda: mountain forests along the Zaire and Uganda borders.
5 Kenya: Kakamega, Nandi, and Arabuko-Sokoke forests.

Western Africa

6 Cameroon: particularly Cameroon Mountain and the moist forested area extending into Gabon, and to the vicinity of the Cross River in southeastern Nigeria, including the Oban Hills.
7 Ivory Coast: southwestern forests (including the Tai forest), and adjacent parts of Liberia and Sierra Leone.

East Asia and Pacific

8 The Malay Peninsula (including parts of Thailand): Lowland forests, especially along the northwestern and eastern coasts.
9 Indonesia: much of the remaining lowland forests of Kalimantan, Sumatra, Sulawesi (especially the two southern peninsulas), and many smaller islands (e.g. Siberut).
10 Phillippines: much lowland forest on all larger islands.

South Asia

11 Sri Lanka: the coastal hills of the southwest and the Sinharaja forest of the 'wet zone'.
12 India: most of the forests remaining on the Western Chats.
13 Burma: and untouched teak forests in the northern regions.

Latin America and Caribbean

14 Ecuador: lowland coastal forests.
15 Mexico: Lacandon forest in Chiapas.
16 Honduras-Nicaragua border: Mosquitia forest.
17 Panama: Darien province.
18 Colombia: the Choco region adjacent to Darien province.
19 Brazil: coastal forests of the 'Cocoa Region' in the southeastern extension of Bahia between the coast and 41o30' W longitude, and between 13o0' and 18o15'S latitude, and an outlier near Linhares, Espiritu Santo.
20 Brazil: parts of the eastern and southern Amazon region.

TROPICAL AQUATIC AREAS

1 Amazon River and associated wetlands (including varzea forests) (Brazil, Peru, Colombia, Ecuador and Bolivia).
2 Orinoco River and Delta (Venezuela and Colombia).
3 Purari River (Papua New Guinea).
4 Muai River (Sumatra, Indonesia).
5 Lake Malawi (Malawi), and other Rift Valley Lakes.
6 Lake Toba (Sumatra, Indonesia).
7 Sudd Swamp (Sudan).
8 Pantanal Swamp (Mato Grosso, Brazil).
9 Lake Atitlan (Guatemala).

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* This list is by no means to be interpreted as comprehensive.

Fig. 4. *Example illustrating how the Terms of Reference for consultants might guide their work with respect to environmental considerations*

OUTLINE TERMS OF REFERENCE FOR DEVELOPMENT OF ..... HARBOUR

I. Introduction

Along with agricultural and other developments on ....., the Government proposes to construct improved facilities at ..... Harbour. Consulting services are required for development of the project from site investigations and assessment of conditions, to design of suitable facilities and supervision of the ensuing construction. Construction of new facilities is to be financed by the Bank, while the consulting services are to be financed under ..... bilateral aid.

II. Scope of Work

The consulting services are to be provided in three phases: Phase I covers site investigations and preparation of preliminary designs; Phase II covers detailed engineering and, when relevant, preparation of bid documents and provision of assistance for prequalifying contractors and evaluating bids; Phase III covers construction supervision.

The work to be undertaken by the consultants will include, among other things, the following tasks:*

Part I

(i) Assessment of hydrographic data and data on sea conditions collected by the Harbour and Wharves Department.

(ii) Assembling of all available data (from the Central Planning Department, the Shipping Corporation of ....., etc.) on cargo and passenger movements through the port, and preparation of forecasts of likely future traffic flows up to the year 2006, taking account of the expected economic development of ..... over this time period.

(iii) Carrying out of all necessary geotechnical investigations of the site, including test drillings of the rock in the harbor basin to establish, among other things, the best method of excavation.

(iv) Based on the above data, preparation of preliminary designs of alternative layouts of harbor and port facilities that meet cargo and passenger needs at minimum

cost, ensuring in the process that the designs minimize adverse environmental impacts.*

(v) Preparation of preliminary engineering designs for all necessary structures and preparation of preliminary estimates of construction costs for each layout; cost estimates should be accurate within 20 percent.

(vi) Evaluation, to the extent possible, of each of the alternative layouts, describing their advantages and disadvantages in terms of: (a) service to cargo and passengers, vessel operation and cargo handling; (b) overall cost and cost effectiveness; (c) flexibility in adapting to different types/volumes of cargo; and (d) their ease of construction.

(vii) Recommending the best method of having the new facilities constructed, including: (a) letting the works as a single construction contract awarded under the International Competitive Bidding (ICB) procedures of the Bank; (b) letting the works as a single construction contract awarded under the International Shopping (IS) procedures of the Bank; (c) dividing the works into several subcontracts to be let under ICB or IS procedures; or (d) dividing the works into several packages to be let as subcontracts under ICB/IS procedures, or carried out by force account by the Ministry of Works.

Part II

(i) Preparation of the final designs for all structures, including wharves, wave protection structures, turning basin, navigational aids, cargo storage areas, etc.

(ii) Preparation of engineering drawings, specifications and quantities in sufficient detail to enable the work to be carried out in the manner agreed-upon with the Bank at the end of Phase I.

(iii) Where International Competitive Bidding procedures *** are to be used, to assisting the Ministry of Works in prequalifying all potential contractors, preparation of evaluation criteria for use in the bid selection of contractors, preparation of all bid documents (including General and Special Conditions, Specifications, Schedule.

of Quantities, etc.), ensuring that all necessary environmental safeguards identified in the design phase are included in the documents, preparation of reports on

site investigations for use by tenderers, and assisting the Ministry of Works, as necessary, in evaluating tenders.

Part III

(i) Providing site staff for supervision of construction and administration of the contract. It is expected that selected Ministry of Works staff will be seconded to the consultants for purposes of on-the-job training.

III. Time Schedule

The services of the consultants are expected to start approximately in ..... It is expected that Phase I will be completed by the end of ....., and that Phase II will be completed by about ..... The construction supervision (Phase III) is expected to start approximately in ..... and to last about nine months.

* A preliminary engineering study prepared by ..... is available on request.

** The preliminary engineering study includes a brief environmental impact analysis; this should be taken into account in preparing the engineering designs.

*** In this regard, the Bank's Guidelines for Procurement are to be followed at all times. In particular, tender deposits, performance bonds and other conditions should be consistent with these guidelines.

AFRICAN TRANSPORT SCENE

Dr. A. Virag*

Abstract

African transport scene

The existing transport infrastructure of Africa originates from the colonial era and does not meet current needs. The transport system is oriented from the interior towards the coastal region using long routes, thus leading to excessive consumption of resources in the transport sector. As part of a strategy for economic integration and co-ordinated policies to promote and support overall development in Africa, it has become necessary to restructure the transport system. A global strategy and a plan of action for the development of transport and communications in Africa was incorporated in a programme and a United Nations Transport and Communications Decade for Africa (1978–1988) was proclaimed by the UN General Assembly. The principal goals of the strategy during the Decade were: to promote integration of transport infrastructure to increase intra-African trade; to ensure co-ordination and efficiency of various transport systems; to open up land-locked countries; to harmonize regulations to facilitate movement of goods; to stimulate use of local human and material resources and to restructure the transport system to ensure optimum conditions. As the lead agency, the Economic Commission for Africa carried out the Decade programme in two phases: Phase I (1980–1983) with 1091 projects costing US$ 15.4 million, and Phase II (1984–1988) with 1048 projects costing US$ 18.3 million.

Significant results have been achieved during the Decade in all modes of transport: road, rail, inland waterways maritime and air transport. In spite of these results, the objectives of the Decade have not all been attained by any means. The physical integration of the transport system and flow of goods has not been completed and they do not operate smoothly. Incomplete infrastructure and administrative and legal formalities impede the movement of traffic across borders. A lot remains to be done to fully achieve the decade's objectives.

On the basis of the global evaluation of the UNTACDA programme, the Sixth Meeting of the Conference of African Ministers of Transport, Communications and Planning in March 1988 requested the United Nations to declare a second Decade in Africa, during which the development objectives would be accomplished.

ORIGIN AND ROLE OF THE EXISTING TRANSPORT SYSTEM IN AFRICA AND PROCLAMATION OF UNTACDA

At the end of the colonial period Africa inherited totally extroverted transport systems which were designed to serve foreign interests and, consequently, were unsuited to the endogenous and self-sustained development of Africa. The geographical distribution of transport infrastructure which developed in Africa during the colonial era was derived from trade, mining and

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agriculture along neolithic lines. The transport systems in Africa were developed with the major objective of facilitating access to regions in the interior devoted to the cultivation and development of commodities for export to overseas colonial markets. This explains why the structure of transport networks in Africa is totally oriented from the interior of the continent towards the coastal region, instead of from one coast to the other or from one region to another. Similarly, the penetration of modern means of transport and communications in Africa has only one objective – to convey goods and information from Africa towards regions outside the continent and vice versa, rather than to link together the various subregions of Africa.

One of the particular characteristics of transport in Africa, resulting directly from this situation, is that it utilizes long routes. This is the case whether these are links between Africa and the rest of the world or links among African countries, because of the absence of direct operational transport links within Africa. This situation gives rise to several other serious consequences: several African countries are obliged to devote a very high percentage of their already very limited resources to the transport sector. According to some estimates, road maintenance in Africa south of the Sahara requires a proportion of the GNP three times higher than that required by other developing countries. Statistics also reveal that transport costs amount to more than 15 per cent of the final price of several African export commodities, making such commodities less competitive at international level, and that the 14 land-locked countries in sub-Saharan Africa pay additional transit charges in the region of 20 per cent of the value of goods transported. This has disastrous consequences for the balance of payments, as well as for the national economies and development in general.

African states soon realized the necessity of restructuring the transport system in order to support and promote development in Africa. They also realized that they would have greater chances of attaining some of their objectives and protecting some of their resources by co-operating closely among themselves, rather than by acting individually. Unfortunately, there was no strategy for economic integration, no appropriate conceptual framework, nor a series of co-ordinated policies to attain this objective at the regional level.

Theories on development and economic growth were developed for the establishment of a New International Economic Order in Africa. The proposed development strategy focused on the establishment of a structure comprising basic industries, which in addition to their capacity to mutually protect each other, were also expected to be capable of providing powerful growth-generating impulses to various sectors, particularly agriculture and development of the rural areas, as well as the establishment of more effective measures in other priority sectors, including the transport and communi-

cations sectors, considered here as essential instruments for stimulating such growth. From then on, the mandate for developing these two sectors changed radically. The new approach brought a new challenge: how to structure and develop transport and communications in order to establish an economy based on co-operation in Africa.

The determination to strive for the economic integration of the continent and to make collective efforts to tackle transport problems in Africa has become increasingly firm and formed the background to the proclamation of the Decade for Transport in Africa.

It was in recognition of the need to highlight the importance of transport and communications that in March 1977 the ECA Conference of Ministers adopted a resolution recommending that a decade be proclaimed in order to focus attention on the special needs of Africa in these sectors.

The United Nations Transport and Communications Decade in Africa (UNTACDA) was officially proclaimed by the General Assembly in December 1977. The Economic Commission for Africa (ECA) was designated as the lead agency entrusted with the preparation of the groundwork for the Decade. In this endeavour, ECA was assisted by financial support from the United Nations Development Programme (UNDP) and by technical advice from all the specialized and other agencies of the United Nations as well as African inter-governmental organizations with competence in transport and communications. The outcome of these efforts was the formulation of a Global Strategy and a Plan of Action for developing transport and communications in Africa.

The principal goals of the Strategy for the Decade are that African countries should work towards:

(a) promoting the integration of transport infrastructure with a view to increasing intra-African trade;

(b) ensuring the co-ordination of the various transport systems in order to increase their efficiency;

(c) opening up land-locked countries and isolated regions;

(d) harmonizing national regulations and eliminating physical and non-physical barriers with the aim of facilitating the movement of persons and goods;

(e) stimulating the use of local human and material resources;

(f) standardizing networks and equipment;

(g) research and dissemination of techniques appropriate to the African context in transport;

(h) expanding the manufacture of transport equipment;

(i) mobilizing technical and financial resources for the development and modernization of transport; and

(j) restructuring the transport sector to ensure that African trade with the rest of the world takes place under conditions most favourable for the continent.

These goals were to be realized through the implementation of policies, plans and projects at the national, subregional and regional decision-making levels, with the main burden being borne by the African countries themselves. To complement and reinforce their efforts, it was agreed that there would be an ECA co-ordinated regional effort based on projects classified in the following order of priority:

(a) regional projects, subregional projects, and national projects having regional and subregional implications;

(b) projects for the least developed, land-locked, newly independent, island, and front-line countries; and

(c) purely national projects other than those mentioned above.

GLOBAL OBJECTIVES OF THE DECADE

Objective 1: Promote the expansion and integration of transport and communications infrastructure with a view to increasing intra-African trade;

Objective 2: Ensure the co-ordination of the various transport and communications networks and improve their management in order to increase their efficiency;

Objective 3: Open up land-locked countries and isolated regions;

Objective 4: Harmonize national regulations and reduce to the bare minimum physical and non-physical barriers with a view to facilitating the movement of persons and goods;

Objective 5: Establish training institutions for management and support personnel and stimulate the use of local human and material resources;

Objective 6: Standardize and modernize networks, equipment and the design of infrastructure;

Objective 7: Research and disseminate techniques appropriate to the African context in relation to the establishment of transport and communications equipment;

Objective 8: Promote African industry, particularly the manufacture of transport and communications equipment;

Objective 9: Mobilize technical and financial resources required for the expansion and modernization of transport and communications infrastructures in Africa;

Objective 10: Restructure the transport and communications sectors to ensure that African trade with the rest of the world takes place under conditions most favourable for the continent;

Objective 11: Define subregional and regional development policies and master plans for each mode of transport, as well as a global master plan integrating all the transport modes, and harmonize national transport and communications policies and plans at sub-regional and regional levels.

The programme for the Decade was implemented in two phases: Phase I (1980–1983) and Phase II (1984–1988).

Table 1 – *Untacda programme: project implementation*

	Number of Projects					
	PHASE I			PHASE II		
Sector/ Subsector	**Programme 1980/1983**	**Completed 1983**	**In progress 1983**	**Programme 1984/1987**	**Completed 1987**	**In progress 1987**
A *Transport*						
Roads	224	90	38	236	62	70
Railways	79	18	30	84	14	40
Maritime	75	33	10	38	7	2
Ports	120	34	53	70	9	30
Air	201	63	69	94	11	31
Inland Water	71	16	4	45	2	5
Multimodal	9	2	0	11	4	2
Sub-total Transport	779	256	204	578	109	180
B *Communications*						
Telecommu-cations	113	19	18	215	34	60
Broadcasting	84	6	7	135	6	33
Postal services	115	19	13	120	15	30
Sub-total Communi-cations	312	44	38	470	55	123
Grand total (A + B)	1091	300	242	1048	164	303
Estimated cost (US$M.)	15.4			18.3		

OVERVIEW OF THE AFRICAN ECONOMY

The last ten years have been a very difficult period for Africa, during which the region passed through a series of recurring and unprecedented crises and growing social and political turbulence and economic imbalances. During this period the prevailing economic rigidities were further compounded by natural calamities and adverse external developments. The great African drought disaster of 1983–1985 constituted a real threat to the livelihood of millions of African people. In addition, the slow growth in the world economy, adverse trends in international commodity markets and in world financial and monetary systems (which culminated in depressed export earnings, reduced resource flow and an escalation of the debt servicing obligations) all combined to bring the African economy to the brink of collapse.

The severe world recession which was triggered off by the escalating oil prices in 1979–1980 resulted in a very appreciable decline in the overall economic performance of African countries.

After the deepening of the African recession in 1980–1982, the region suffered yet another calamity when many countries in the region were afflicted by one of the most disastrous droughts on record during the period 1983–1985. The signs of a recovery that had emerged in 1982 were all eliminated during 1983.

The drought had a severe impact on the growth of agriculture and, coupled with a hostile international environment, considerably reduced the growth of the export sector during the period. Consequently, imports were drastically reduced. Lack of basic industrial inputs and capital goods limited the capacity of African countries to adjust to the crisis and achieve growth.

However, in spite of the reductions in imports, the sharp deterioriation of the terms of trade and the unfavourable international monetary environment, African countries found themselves with chronic balance of payments difficulties and had to resort to massive borrowing on even more stringent conditions. This contributed to an insurmountable debt burden in the region, and consequently aggravated an already difficult situation to produce a crisis of unmanageable proportions. Concern about this critical social and economic situation led to the adoption of Africa's Priority Programme for Economic Recovery 1986–1990.

DEVELOPMENTS IN TRANSPORT THAT TOOK PLACE DURING UNTACDA I

Before assessing the trends and problems in the different modes of transport it is pertinent to recapitulate briefly on the overall structure of the African

transport sector. It is a common feature of the African transport network that historically it served primarily to penetrate the interior of African countries and thereby served as a link to the metropolis. Thus, up to the present day large parts of rural areas remain unserviced by any transport infrastructure. The limited railway network continues to be unintegrated within and among countries; shipping continues to be an essentially non-African enterprise dominated by foreign shipping companies; telecommunications are also characterized by an unhealthy bias towards communications with or via the developed countries. In the recent past, the transport sector has registered poor growth. This was due to the low level of overall economic activity as a result of the economic crises which Africa experienced and the unfavourable world economic environment.
Below is an examination of the developments that occurred in each subsector during UNTACDA and of the problems that remain to be solved with regard to operations, infrastructure and policies.

Roads

Road networks in Africa expanded very fast between 1960 and 1980 and traffic volume also increased rapidly during those 20 years following independence. The negative aspect of this otherwise normal phenomenon is that, mainly due to lack of effective safety measures, road fatalities and injuries have also been increasing, accounting, in most countries, for more deaths than all major communicable diseases combined. Another alarming aspect of road transport development in Africa is that, due to ineffective and inefficient maintenance of road infrastucture and facilities, countries are wasting enormous amounts of resources which they have invested in building up their national networks. Deteriorating roads have also become a major factor in rising vehicle operating costs.

The Trans-African Highway network consists of:
Lagos-Mombasa Trans-African Highway (6,313 km), Cairo-Gaborone Trans-East African Highway (9,744 km), Tripoli-Windhoek Trans-Central African Highway (9,037 km), Trans-Sahara Highway (8,266 km) and Trans-West African Highway Network; Dakar-N'djamena – Trans-Sahelian Highway (3,888 km), Lagos-Nouakchott Trans-Coastal Highway (4,659 km), and Trans-Southern African Highway: Beira-Lobito (3,194 km).

This main highway network consists of roads with bitumen and gravel surfaces and was the main concern during the Transport Decade.
Since 1980 road transport has continued to account for 80–90 per cent of inland goods surface traffic.
There is an impending crisis in road maintenance in Africa, where countries face perhaps the highest road maintenance burden in the world, as well as

facing serious institutional and budgetary limitations in their attempts to eliminate the backlog of accumulated maintenance and perform routine annual maintenance to prevent further deterioration.

A future transport development programme therefore needs to address the crucial maintenance problem, which is attributable in part to lack of awareness on the part of core government agencies responsible for budgetary allocation and for setting priorities among competing sectors.

For the effectiveness of the Trans-African Highways and other inter-State road links, the institution of mechanisms to facilitate border-crossing operations is a *conditio sine qua non*. The facilitation commissions established under the auspices of the Lagos-Mombasa and the Cairo-Gaborone Trans-African Highways have prepared drafts of facilitation conventions but they have not yet been implemented.

Railways

The railway network of Africa consists of different systems with different gauges.

Data on the African railway networks is not readily available, but it is clear from what we do know that there has been some increase in the railway network in most subregions, except in Eastern and Southern Africa. North Africa's network is estimated to have reached a length of 18,100 kilometers in 1985. West Africa's increased by 500 kilometers between 1981 and 1985, reaching a length of 11,100 kilometers in 1985. The railway network in Central Africa also grew, mainly because of new constructions in Gabon. The Railway Master Plan drawn up by the Union of African Railways at the beginning of UNTACDA envisages the interconnection of most of the existing railways in the long term. A more immediate problem, however, is the rehabilitation of practically all the existing railways. Considerable progress was made in that regard during UNTACDA with major rehabilitation work being carried out in Cameroon, Congo, Kenya and Mozambique and on a smaller scale in Ethiopia-Djibouti, Côte d'Ivoire, Mali, Senegal and Tanzania.

Five railway training institutions were designated as subregional and of these, one, in Wardan, Egypt, was already in existence while three had to be established from scratch and the existing one in Nairobi, Kenya had to be expanded. The one in Nigeria was established with local funds while the one in Brazzaville was established with assistance from several external sources.

Inland water transport

In the field of inland waterway transport, some achievements have been realized in the field of improving navigability of rivers and lakes, technical assistance for the development of inland water transport, training,

standardization of vessels and acquisition of new units, and inland port development.
As regards improvement of navigability of rivers and lakes, navigation on the Casamance river in Senegal was improved and dredging works were carried out on the Banga Lanes Canal in Madagascar.
As regards technical assistance for the development of inland waterway transport, technical assistance was provided to Mano River Union for the development of navigation of the Mano River, and an economic and technical study for development of transport on the Benoue River.
As regards standardization of vessels, studies were undertaken regarding the type of crafts usable on the Zambezi, Kafue, Kabompo and Luangwa rivers as well as river vessel design in Sudan. New craft were acquired in Mozambique, Zambia, Congo, Sudan and Malawi.
Lastly, with regard to inland waterway ports, some achievements can be highlighted in Malawi: construction of specialized berthing facilities and a study on the modernization of a workshop for the inland water fleet and floating docks; and for Burundi, the construction of transit warehouses at the ports of Kigoma and Dar-es-Salaam, both in Tanzania.
The efficient operation and development of inland water transport is seriously hindered by a lack of skilled management and operational staff to properly operate and maintain the various inland water transport fleets and organizations.

Major problems that will require attention in the near future are:
- a lack of standard craft, machinery and regulatory rules and legislation.
- a shortage (in some cases a total absence) of statistical information and detailed data which hampers efforts to organize integrated development schemes.
- a serious lack of navigational aids on the river channels, as well as dry docking facilities including slipways, warehouses and cargo handling equipment at major inland ports.

Most inland ports in Africa are poorly manned and inadequately equipped, and many are without road and/or rail links.

Maritime transport
Africa's share of the world tonnage, which was 6.6 million DWT or one per cent in 1978, rose to 7.6 million DWT or 1.2 per cent of the world total by 1986. This means an overall growth of 15.2 per cent during the Decade. The great majority of African countries achieved fleet capacity increases, although these ranged from as low as 3.6 per cent for Algeria to as high as 378.5 per cent for Angola, 406.5 for Cameroon, 287.3 per cent for Ethiopia and 191 per cent for Tunesia.

African ports have developed considerably since 1980. Several ports have been built: Tema in Ghana, Assab in Ethiopia, Mogadiscio in Somalia, Victoria in Seychelles, Praia in Cape Verde, San Pedro in Côte d'Ivoire, Nouakchott in Mauritania, etc.

On the whole, African port traffic has increased, particularly between 1977 and 1986. For instance, Algerian ports handled 18 million tons of goods in 1985 as against 10 million tons in 1977. At Pointe Noire in the Congo, port traffic increased from 3 million tons in 1978 to 8 million tons in 1983. In Morocco, it increased from 18.6 to 34 million tons between 1970 and 1979 and from 39 to 40 million tons in 1985/86. Several other ports recorded increased traffic.

On the whole, vast face-lifting programmes for African ports were initiated during the Decade. These programmes required substantial resources to meet the needs of the growing traffic, the modernization and rehabilitation of port facilities and technological development in terms of the size and type of vessels. The rapid development of containerization and its spread over all the maritime routes have also created new infrastructural and handling equipment needs.

New port facilities were set up to cope with the difficulties of expansion of existing facilities, particularly in Nigeria, with the construction of Tin Can Island, and in Algeria where the construction of a new port 20 km from Algiers is under study.

The vast majority of ports have carried out expansion works, built additional warehouse facilities and acquired equipment and materials for handling various goods, especially petroleum products and container ships. Particular efforts have been made to carry out improvements to cope with the growth of container traffic. Many ports now have container parks or terminals and have acquired modern and effective equipment (Abidjan, Pointe Noire, Djibouti, Alexandria, Mombasa, Port Louis, Casablanca, Maputo, Tin Can Island, Dakar, etc.).

It should also be pointed out that the ports have made real progress in regard to infrastructure and equipment. These efforts testify to the awareness of African governments of the economic importance of the port industry and should be pursued. Port productivity, however, is still low and physical developments need to be matched by qualitative improvements.

In the maritime transport sector, the existing problems could be summarized as follows:

- lack of a clearly defined co-ordinated subregional/regional integrated maritime development policy, although some effort is being made in this regard in West and Central Africa, particularly with regard to the development of fleets, ports, shipyards and training centres;

- absence of multinational shipping fleets which could satisfy the maritime needs of African States;
- lack of a body capable of articulating a national shipping policy in many countries;
- absence of any back-up subregional cargo booking and cargo alignment structures;
- the shortage of shipping capacities;
- the shortage of high-level manpower skills;
- poor utilization of berthing, handling and storage facilities;
- shortages of qualified personnel;
- the decrepit nature of handling equipment, the shortage of spare parts and inadequate availability of existing equipment;
- poor port organization and management and lack of co-ordination among ports.

At the same time it should be noted that regional co-operation in the field of maritime transport has not reached a desirable level, though there have been some significant achievements during the Decade. Maritime Transport Academies have been established in Accra and Abidjan, and the Alexandria Maritime Transport Academy has been strengthened. All these institutions have made a considerable contribution to the training of both onshore and offshore personnel. Furthermore, training of high-level instructors for developing companies goes on at Malmö Maritime University and Africa needs to utilize this facility more.

Port Management Associations have played a significant role in bringing together African port officials, and the Ministerial Conference on Maritime Transport (MINCOMAR) has done the same in the field of maritime transport in general. On the other hand, many efforts made by the Economic Commission for Africa, other UN organizations and subregional port management associations to enhance co-operation among ports have not yet had tangible results. Though attempt have been made to establish subregional dredging pools, port statistics and information exchange centres and joint pools to combat pollution, these plans have not come to fruition and are still at the prefeasibility study stage.

On the positive side, it is worth noting that about 25 African countries have established national shippers' councils or equivalent bodies for the protection of the interests of shippers.

Air transport

In the air transport field a great deal of success was achieved in the areas of training, institution building, technical assistance and improvement of airports.

As regards training institutions, partial financing was secured for the multinational training centres at Addis Ababa (Ethiopia) and Mvengue (Gabon). The pilot training centre at Mexico (Angola), the East African School of Aviation at Nairobi (Kenya), the Mogadiscio Technical Training Centre (Somalia), the School of Meteorology and Civil Aviation at Niamey (Niger) and the Civil Aviation Academy at Soroti (Uganda) all secured full financing. Extensions were also undertaken at the training school in Kinshasa (Zaire) and the Air Afrique School in Dakar.

A number of projects related to navigational aids and other equipment were carried out at eight airports located in seven countries.

In sum, a lot of effort has been made by African States to improve the air transport infrastructure. To this end a number of new airports have been constructed and many old airports have been improved. Improvements at airports have mainly resulted in better terminal buildings, better and longer runways to accomodate bigger aircraft, and better navigation and communication equipment. Even so, a lot remains to be done, particularly in the area of communication and navigation equipment. The improvement of communication and navigation facilities is absolutely necessary for better air traffic control services.

In spite of the impressive achievements in the field of air transport, some old problems still persist which need to be tackled with renewed vigour. Among these is the fact that African airlines are still facing a critical financial situation due to weak management and unqualified personnel.

Finally, there are the two problems of a lack of co-ordinated maintenance centres and the absence of a variety of fares and charges which would enhance air transport for the benefit of intra-African trade and tourism.

Another new development is related to the distribution of the airline's product, namely, the phenomenon of computerized reservation systems which provide the airlines that own them with the means to syphon off passenger traffic from their competitors. These systems, which were originally developed by the American airlines, are in the process of being introduced in other regions of the world where they will be owned by consortia of airlines, since they would be too expensive to be installed by the individual airlines.

The implications of these developments for Africa are grave as her airlines are small and weak; it is now clear that they cannot, as presently organized, compete in the international market-place against the giant airlines of other regions. The only hope for the survival of African airlines lies in their willingness to merge into bigger and more competitive carriers and this is the strategy that must be relentlessly pursued in the years to come.

CONCLUSION

It can be seen from the foregoing that the basic problems that led to the declaration of the first Transport and Communications Decade still remain unsolved. The integrated network which was the objective of the Decade still has large gaps in it and indeed progress towards filling them has been negligible. Even where inter-State transport systems exist, the flow of goods on these systems is still not smooth because of the incompleteness of the infrastructure and numerous administrative and legal formalities that impede movement of traffic across frontiers. A lot remains to be done.

The sixth meeting of the Conference of African Ministers of Transport, Communications and Planning, held in Kinshasa, Zaire, in March 1988, called in its resolution ECA/UNTACDA/Res.88/73 for a second United Nations Transport and Communications Decade in Africa for the years 1991–2000 in order to continue the work of UNTACDA I. In thus continuing the work commenced during UNTACDA I, it will be necessary to sharpen the focus of the collective African effort to develop transport by revising old policies and strategies and by more clearly defining the roles of the various parties involved.

THE TRANSPORT SITUATION IN AFRICA AND THE HUMAN RESOURCE DIMENSION

Henry B. Njuguna*

Abstract

The transport situation in Africa and the human resource dimension

Part one of this article describes the transport situation in Africa. The article reviews the problems facing the various modes and considers them on a mode by mode basis. The problems are monumental: they include inadequate infrastructure, inadequate maintenance which leads to premature deterioration of infrastructure, managerial problems of transport enterprises, non-physical barriers and issues related to the institutional framework and training. The paper concludes that the transport situation is the best mirror of the macro-economic setting and that all the economic indicators are as grim as the transport situation itself. The GDP growth rate has been falling steadily since 1970, and agricultural production and per capita food output has also been falling, making a number of countries net importers of food. Meanwhile terms of trade and prices of primary commodities have continued to deteriorate while population growth remains the highest in the world.

Part two looks at the human resource dimension and training. Again these are treated on a mode by mode basis. Training is presently carried out at four levels; in-house, at national level, at regional level and overseas. The article notes that there is a substantial need for middle and senior level training, for which there is at present inadequate capacity at national level. For reasons of economies of scale, the benefits of cross-fertilisation of experiences and relevance, the article advocates that the strengthening of capacity should be performed at subregional level. The Eastern and Southern African Management Institute (ESAMI) based in Arusha is the only sub-regional level institute with capacity and capability for transport management training and is the obvious first choice for strengthening in order better to meet these training needs. Finally the article notes that training must be seen as part of the broader human resource development policy and that an adequate institutional framework for man-power development for ministries, parastatals and enterprises involved in transport should be developed.

PART I: THE TRANSPORT SITUATION IN AFRICA

INTRODUCTION

Transportation provides the capability to the people and resources from one point to another. This capability is a very important one for without it it is impossible to sustain a modern economy, or indeed any economy. The early Egyptian and Roman civilisations were founded on their superior transpor-

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tation systems at that time – Egypt depended on the River Nile while the Roman Empire depended on its technologically advanced road network. Today, the developed world is distinguished by its modern, efficient and sophisticated transport system which is generally adequate for the intended purpose. Transport affects all facets of the economy and is a precondition for economic development, albeit not the only one. Specialisation and trade on the basis of comparative advantage are not possible without some form of transport. It is for this reason that transportation is a good criterion for judging a country's development – a good look at a country's transport situation will reveal a great deal about the economic and social development of the country. In the following pages we look at the transport situation in Africa and the many problems and challenges facing those responsible for it. In part two we relate this to the human resource dimension and to training requirements.

MACRO-ECONOMIC SETTING

Africa is a large and diverse continent. With an area of 30.3 million square kms Africa is the second largest continent, being surpassed only by Asia which has an area of 43.8 million square kms. It stretches for nearly 8,000 km from north to south and nearly the same distance from east to west. With 52 nation states, ranging from very large (Sudan, 2.5 million sq.km) to very small (Swaziland, 17,300 sq.km) and from highly populous (Nigeria, 100 million people) to thinly populated (Botswana, 1 million people in an area two thirds the size of Nigeria), Africa is a very diverse continent. Climate and vegetation vary widely, ranging from the Sahara desert to the lush tropical forest of Central Africa. Africa is politically also a very young continent; most of her nation states received their independence in the 1960s and 1970s, while very few countries have been independent for more than 30 years and very few can be said to have come of age politically. Demographically, Africa's population is also a very young population: overall the proportion of population below age 18 is 50 per cent, and the figure is much higher in some countries. In Kenya for example it is estimated at 65 per cent. Africa faces many problems and challenges: almost all the indicators of the socio-economic situation are grim. According to World Bank figures, the average GDP growth rate in sub-Saharan Africa was 3.6 per cent a year during the seventies but it has been falling steadily since. No other region of the world has recorded lower economic growth. The performance of agriculture, the most important sector of the economy, has been declining. This reflects a long term trend both in agricultural production and per capita food production. Per capita food production has been declining by about

2 per cent per year since 1970 and many countries have become net importers of food. The terms of trade and prices for primary commodities have continued to deteriorate while industry, its hands tied by foreign exchange shortages and import restrictions, has been severely hit. Budgetary constraints have led to a gradual collapse of existing infrastructure. In the meantime, at 3 per cent per annum Africa's rate of population growth remains the highest in the world. Total population was 222 million in 1950, increased to 278 million in 1960, to 344 million by 1970, to 479 million by 1980 and is expected to reach 645 million by 1990. This rapid growth of population has had serious repercussions on efforts to improve the socio-economic situation of the people.

THE TRANSPORT SITUATION

Africa's transport system has been greatly influenced by history, geography and the pattern of economic development. One of the features which has tended to hamper the development of transport has been the vast size of the continent and geographical features such as difficult terrain, large desert areas, which constitute formidable barriers, and harsh climatic conditions. Because of this, inland water navigation is poorly developed. Except for stretches of some of the bigger rivers and a few lakes, inland navigation is not possible. Thus Africa's dependence on other forms of surface transport (road, rail and pipeline) is proportionately greater than that of other continents. These modes of transport also happen to be relatively more expensive than inland navigation and thus Africa's transport situation is one of having to meet exceptionally large needs and cope with difficult conditions with extremely limited resources.

The transport situation in Africa is perhaps the best mirror of the socio-economic challenges facing Africa. The transport sector faces many problems. First there is the problem of the physical infrastructure itself which is inadequate in terms of both reach and extent and often substandard. There simply are not enough roads and railways. The situation is made worse by very serious budgetary constraints facing many countries, which means that there is little surplus to invest in new infrastructure. Thus planning and investment choices have to be rigorous, with great attention paid to project timing and the recurrent implications of new investment.

Secondly, there is the very serious problem of maintenance of both infrastructure and equipment. This has meant very rapid deterioration of infrastructure, high rates of capital consumption and increased transport costs which not only adversely affect other economic and social activities but also waste scarce foreign exchange.

Thirdly is the problem of non-physical barriers caused by inappropriate interventions, 'unofficial' controls and restrictions on entry. This has seriously affected regional co-operation and trade and hampered transit operations for land-locked countries.

Fourthly there is the problem of operational efficiency of transport parastatals. Autonomous or semi-autonomous parastatal organisations are involved in many transport activities in Africa. They include railway, national airline, ocean shipping and pipeline corporations, port authorities, urban bus companies and in some countries national road haulage companies. The majority of these parastatals are in deficit or in weak financial positions and have to be supported by state subsidies[1] to make up their operating deficits and meet their debt servicing and investment needs, which is a serious drain on the nations' financial resources. Many reasons can be given for this serious position, the most important of which is the human resource dimension including frequent rotation of top executives, the limited number of experienced middle managers and operatives and overstaffing at lower levels. Given the bleak prospects as regards the availability of increased financial resources, the transport sector as a whole must strive towards self-reliance through increased efficiency and productivity and by achieving higher levels of cost recovery from the services it provides.

Lastly there is a the issue of institutional and human resource development. Generally there is shortage of skilled manpower and of adequate training activities in all modes of transport. This has been brought about by inherent institutional problems which have imposed limitations on the effective and efficient recruitment, deployment, development and retention of the right calibre of staff.

The issues and problems facing the various modes are described below.

ISSUES AND PROBLEMS FACING VARIOUS MODES

Roads and road transport

(i) *Inadequacy of Road Networks*

In most countries in Africa the road system consists of networks of varying quality with many sections having substandard specifications, while there are very few interstate connections, which makes interstate movement and trade difficult.

(ii) *Poor Road Conditions as a Result of Insufficient Maintenance*

Road conditions have deteriorated in most of Africa due to insufficient maintenance or none at all, and this has led to a crisis situation. The building boom of the 1960s and 1970s which created most of the existing road infrastructure has not continued into the 1980s. The cost to governments of

remedying past neglect is very large today: moreover, it will increase in the future because road deterioration accelerates with time.
However, compared to losses due to the increase in road user costs, they are only the tip of the iceberg. Costs to road users operating vehicles on rough, pot-holed roads are very high indeed.

(iii) *Non-physical barriers*
The few inter-territorial links that exist are fraught with numerous non-physical barriers ranging from legal, procedural and administrative to technical ones. The significance of non-physical barriers in hampering international trade has been recognised for a long time and has been the subject of study as a basis for their eventual elimination by various national and international bodies including the PTA, UNCTAD and the various corridor system authorities. The barriers include:

- complicated import/export documentation procedures
- lengthy border procedures and formalities for transit goods
- obstructive procedures at axle-load weighbridge stations as well as road toll stations
- lack of freight exchange bureaus or other means of intercompany co-operation to facilitate securing of return loads
- non-standardised requirements for insurance and transit bonds
- non-existent or poor breakdown and recovery services -services which are essential to hauliers in the event of a breakdown or accident.

(iv) *Road Accidents*
Road transport operations in Africa are characterised by high accident rates both in total and of fatalities when compared to operations in other parts of the world. Accidents are expensive not only in terms of suffering and grief and hospital expenses but also in terms of damage to loss of vehicles and transit cargo. It is estimated that loss due to accidents accounts for about 1–2 per cent of GNP. It is encouraging to note that National Road Safety Councils have been established in many countries but much remains to be done.

(v) *Underdevelopment of Institutions Responsible for the Economic Regulation of the Road Transport Industry*
In most countries the regulation of the road transport industry is the responsibility of a government ministry or the transport licensing board. The situation is that many of these bodies are undermanned and lack people with the necessary skills to carry out the important tasks entrusted to them. The boards are not equipped to make proper decisions to regulate the road transport industry.

(vi) *Lack of Adequate Transport Capacity, Particularly in Rural and Other Remote Areas*
In general there is not enough capacity for either passenger traffic or freight, but the situation in rural areas is much worse than elsewhere due partly to the reluctance of operators to service these areas because of bad roads.

(vii) *Lack of Enforcement of Axle Load Limits*
The reason for this is a lack of trained manpower and the absence of enforcement equipment. The sad result is that the roads suffer severe damage by being made to carry loads that they were not designed for, with consequent premature failure.

(viii) *Inadequate Capacity and Poor Management of Urban Public Transport*
Problems relate to inadequate fleet and a lack of adequate maintenance partly due to unavailability of spares, and the fleet is therefore underused. There is also a lack of adequate physical facilities such as terminals and exclusive lanes, which leads to sustained heavy congestion in many cities.

Railway transport
(i) *Maintenance and Rehabilitation of Tracks*
Railways were the first mode of transport to be developed at the turn of the century and for decades were the major mode of transport and enjoyed monopolies. As other modes developed – notably road transport – railways found themselves facing strong competition. As a result revenues decreased and so did investment in maintenance, rehabilitation and improvement of services.
Maintenance of tracks is a continuous process. If it is not carried out regularly, this affects transportation efficiency and safety. There is a need for renewal of track equipment (sleepers), welding of rails to reduce wear on rolling stock and also the modernisation of signalling equipment.

(ii) *Deteriorating Rolling Stock*
Rail operation requires rolling stock in sound technical condition. Unfortunately the upgrading and rehabilitation of the fleet has not been given the attention it requires. The result is that, because of breakdowns, railway companies cannot operate the network in the most efficient manner to utilise existing capacity.

(iii) *Increasing Competition from Other Modes*
Road transport is growing fast and in most cases competes directly with rail. The road mode has the advantage of door-to-door capability and is also much faster and more flexible. The railways should normally have the advantage of lower costs per km., particularly for long-distance bulk transport, but have

not yet been able to use this to maximum advantage because of inadequate capacity and a general decline in the quality of services offered by railways.

(iv) *Poor Development of Inter-territorial Rail Networks*
Rail transport has the greatest advantage when goods are hauled over long distances. On this basis, it would be desirable if an inter-territorial rail network could be developed. This however had been hindered by:

- the existance of different railway gauges at subregional level
- the lack of standardisation of equipment used by national networks
- a failure to establish traffic exchange points for movement between adjacent networks
- the lack of links to connecting points in adjacent countries.

Ports and maritime transport (shipping)
Because of the nature of African economies, which essentially rely on exports of raw agricultural commodities and minerals to developed countries and imports of manufactured goods from them, ports and maritime transport play a very significant role. The bulk of import/export trade is carried by sea and handled by the ports. This is clear from the fact that Africa has some 100 ports ranging from medium to fairly large, of which 50 are major international ports. These ports not only serve national interests but also have regional and subregional functions since they provide transit and transhipment services to neighbouring land-locked countries. There has been rapid development of port facilities in the last 20 years. At present there are some 200 berthing facilities for ocean-going vessels compared to less than 100 only 15 years ago.
The main problems facing African ports today are:

(i) *Management and operations*

- ineffective management, bad supervision and poor labour relations with no coherent policy on the co-ordination of port operations.
- lack of co-ordination between various sectors of port operations (traffic stevedoring, various agencies, etc).
- improper use of transit sheds and port storage facilities.
- lack of co-operation between ports and carriers to provide precise information on the arrival of vessels and the cargo they carry.
- failure to streamline documentation requirements.

(ii) *Training and Manpower Development*
Lack of skilled manpower affects port operations, resulting in poor port performance. There is a need for an adequate number of training centres for port personnel as an integral part of port development.

(iii) *Infrastructure/Equipment*
Many ports lack adequate cargo handling equipment, radio communication between ports and vessels at sea and also adequate road and rail connections to the hinterland.

(iv) *Predominance of Foreign Merchant Fleet*
There is a need to develop an African merchant fleet, which at present is almost nonexistent. In 1981 for example Africa's sea trade constituted 14.60 per cent of the world's total trade, but African merchant shipping carried only 1 per cent of the total world tonnage. There is also a need to update and amend maritime law to suit the shipping interests of African countries, and to harmonise it to facilite co-operation.

(v) *Inflation in Freight Rates in Liner Shipping*
Increasing freight rates have eroded the value of exports and increased the cost of imports. There is a need to create a shippers' council to promote and protect the interest of the shippers, to co-ordinate and aggregate cargo and to provide information on shipping and freight rates.

(vi) *Need to set up Repair Facilities for Ocean-Going Vessels (Dry Docks)*
This would both increase employment opportunities and lead to considerable foreign exchange savings.

Air transport
The major problems hindering the smooth development of air transport in African countries are as follows:

(i) *Protectionism*
The protectionist attitude adopted by African Governments for their own national airlines on account of their somewhat inadequate share of traffic hinders the development of air transport.

(ii) *Lack of Coordination and Cooperation Between National Airlines*
There is a need for co-ordination between airlines especially in respect of freight services and the drawing up of flight schedules.

(iii) *Lack of Modern Aircraft*
This situation persists because of the lack of financial resources. Most fleets are old and outdated.

(iv) *Need for More Trained Manpower at all Levels*

(v) *Use of Outdated Aeronautical Equipment*
A large number of airports in Africa and much of their air navigation equipment are too old and obsolete. There is a need to rehabilitate and expand existing airports as well as airport handling facilities.

(vi) *Financial Situation of National Airlines*
Most airlines incur large operating losses and face severe financial crises, so that they require constant handouts from the treasury. This is made worse by a decline in traffic leading to gross underutilisation of aircraft.

PART II: THE HUMAN RESOURCE DIMENSION: TRAINING NEEDS AND REQUIREMENTS

INTRODUCTION

The importance of increased and better management training in the transport sector in developing countries has been stressed in a number of documents. The UN Department of International Economics and Social Affairs (DIESA) for example has noted that:
'To improve the efficiency of transport systems and services in developing countries, the countries themselves and international organisations which assist them in the transport sector will need to give greater priority to manpower development in the coming years.'[2] It further observed:
'Most developing countries lack the facilities and instructors to train their transport personnel and must send these to institutions far away in developed countries. This is a very costly practice which does not permit the countries to train sufficient personnel. Moreover the training programmes provided overseas do not always suit the geographic environment and other conditions of developing countries.'[3]
The above quotations are relevant to Africa and they underscore the important role of training in the transport sector. Training needs are considerable for almost all modes, and there is a widely recognised transport management gap between the demand for and supply of indigenous management talent.

TYPES OF TRAINING INSTITUTIONS

Training is generally carried out by various types of institutions as follows:

(i) *In-house Institutions*: are owned by ministries of works/transport and the larger transport corporations and serve to train their own staff. In-house institutions emphasise training in technical skills and to some extent the training of junior management.

(ii) *National Institutions*: these include vocational and trade training institutes, polytechnics, universities and national institutes of administration/management. These are of course very important and provide the

bulk of skill training. Unfortunately specialised transport management training is almost non-existent at national level.

(iii) *Regional Institutions*: regional institutions are those which are regionally owned and which serve trainees from a particular region. There are a few of these in Africa, the best known in the field of management training being the Eastern and Southern African Management Institute (ESAMI). ESAMI has capabilities and a good track record in transport management training.

(iv) *Overseas Universities*: overseas universities and other higher education establishments have played an important role in meeting Africa's training needs for high level manpower. At postgraduate level, overseas universities offer invaluable opportunities for African graduates who wish to pursue advanced studies in specialisations such as transport economics or transport management which may not be available at national level. The problem with overseas training institutions is that they can only accomodate very limited numbers since most places are reserved for their own nationals. They are expensive and except for the few candidates who win fellowship awards, the number who can afford to pay the fees is limited, while the curricula are not always attuned to local conditions and some of the techniques may not be applicable at home.

TRAINING NEEDS

Roads and road transport

Roads are invariably provided by governments who through the ministry of works/transport and communications are responsible for planning, design, construction/contract supervision, maintenance and regulation of the road network. This requires well trained engineers, planners, economists, surveyors, administrators, etc. Training for these is generally provided at national universities followed by on-the-job training. In many countries output from the universities is insufficient and there are acute shortages.

What is needed most is management training in such areas as transport policy, general transport management, human resource management, manpower planning, trade facilitation, investment planning, international procurement, road mantenance planning etc. This is the area where training at regional level is appropriate and institutions like ESAMI can play their role.

For road transport enterprises there are virtually no institutions specialising in road transport management and many middle and senior staff have to learn on the job. The need here is for courses in operations, maintenance and management of road transport fleets, marketing of transport services, budgeting and cost accounting, etc. These too are best handled at regional level.

Railways and rail transport

Railways are run by big corporations, which are major employers of personnel. For example Kenya Railways with about 2,000 km of railway track employs over 20,000 people or about 10 people for every kilometre of track. Expenditure on staff often accounts for considerably more than half the operating expenditure of a railway. There is considerable overmanning at lower levels (unskilled and semi-skilled grades) with some shortages at the middle and upper management levels. Many railways own and run their own in-house training schools which are used for technical and supervisory training. There is a need for senior management programmes in the form of seminars/workshops to focus on general management issues, computer applications, manpower planning, performance appraisal, etc. Such programmes are best implemented at regional level.

In addition to the training requirements there is a need for all railways to create a proper manpower institutional framework with a mandate to draw up proper conditions of service, training policies and career development programmes.

Ports

As in the case of the railways, there is a clear need to focus attention on the institutional framework for manpower development for the ports. Many ports employ large numbers of workers, the majority being operatives and semi-skilled workers. Issues to be addressed include commitment to institutionalised management principles to enhance performance through increased job commitment and adoption of work ethics and development of procedural, operational, financial and administrative manuals for use by different levels of management. There is also clearly a need for job descriptions, conditions of service and performance review systems for all staff.

Training needs, though not quantified in many ports, appear large. At the operative and supervisory level these have been addressed by inhouse training schemes including TRAINMAR programmes organised by UNCTAD's shipping division for a number of African ports. The TRAINMAR programmes place emphasis on helping local training institutions to achieve self-reliance in the development and carrying out of training programmes for supervisory management of maritime organisations.

Training of middle and senior management has invariably been undertaken overseas or at regional level. ESAMI has for a long time offered specialised management courses in the area of ports and shipping.

Air transport

The air transport industry is very sensitive. In particular all operational staff (pilots, engineers, etc) must have internationally recognised qualifications before embarking on operational duties. When shortages have occurred, they have been overcome by recruting expatriate staff. It is essential that all personnel at management level update their skills regularly either through inhouse training or through participation in externally organised programmes. In order to arrange this, airlines must carry out proper manpower analyses on a regular basis with a view to determining their development programmes.

In the non-operational disciplines such as marketing and finance, there are skill-gaps and there is a tendency in many cases to take on too many semi-qualified staff.

Most of the technical and supervisory training is carried out in house or at national level, but there is a need to create a capability at regional level to undertake some of the management training now carried out overseas.

TRAINING FRAMEWORK

At organisational level training cannot be considered a separate activity. Rather it must be integrated into a broader manpower policy that is endorsed and supported by management. As a general prerequisite for promoting training within transport organisations, emphasis must be placed firstly on establishing an organisational structure which is appropriate to the overall policy and the management requirements of the organisation. Secondly a manpower department needs to be established within the organisation with overall responsibility for manpower development and training. Thirdly, training policy must be integrated with overall responsibility for manpower development and training. Finally, appropriate manpower development tools including job specifications, manpower plans, performance appraisal systems, staff development plans and operational training policies have to be established.

In order for training to yield optimal results and to ensure that staff are motivated as a basis for retention of good staff and to enhance performance, the institutional framework described above must be established before training commences.

In every mode of transport, increased and improved transport management training is sorely needed in view of the present limited capacity and the urgency of training senior and middle transport management staff. There are good reasons for strengthening the capacity for such training at subregional level because of the economies of scale associated with it. The number of

managers in each country is limited and it would not be cost-effective to establish training facilities and programmes at national level. Training at subregional level has the added advantage of cross-fertilisation between managers from different countries and with different experience in related organisations.

The Eastern and Southern African Management Institute (ESAMI) is Africa's best example of a successful regional training institute. ESAMI has much experience of providing training for the transport sector and could meet regional training needs for middle and senior transport managers and professionals in its service area. In the past it has not provided full coverage of all modes of transport, but it is now in the process of expanding its capacity and capability in transport management training to provide a much wider portfolio of courses and cover all modes. Donor support will be required to help ESAMI in this endeavour and to maintain the important lead it has gained in meeting managerial training needs at regional level.

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Notes

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AIR TRANSPORT IN AFRICA

Kassa Eskinder*

Abstract
Air Transport in Africa
Africa is a vast continent which needs good communications. The road transport system is not adequate and therefore a good air transport network should be developed. Air transport is also an important means of stimulating social and economic development in Africa. AFRAA was founded out of a need for closer cooperation among African air transport companies.
A major challenge facing African airlines is the need to modernise their fleets as regards permissible noise levels.
The author suggests that one solution is for African airlines to amalgamate.

INTRODUCTION

Africa with its 29,798,000 square kilometres is the second largest continent in the world. The total population is more than 500 million, representing slightly over ten per cent of the world's total population. A quick look at the physical features of Africa shows a huge land mass straddling the equator with just a few adjacent islands and with few inland waterways. The land mass consists of some of the largest deserts and jungles in the world, making surface transportation in much of the continent difficult, time-consuming and probably more expensive than anywhere else. It has aptly been said that a mile of road leads nowhere but a mile of runway leads everywhere. Aviation in Africa, therefore, plays an essential role in world commerce. It promotes trade and tourism by providing rapid and frequent communication for people and goods on a global scale. Expressed differently, air transport has a particular role in helping to foster the economic and social progress of developing nations, in many of which alternative means of communication are rudimentary or non-existent for the reasons stated above. The cost and time involved in building modest but adequate airports, buying suitable aircraft and providing essential ground support are minimal compared with the huge expense of constructing road and railway networks. It was this state of affairs that caused the mushrooming of commercial airlines in Africa as decolonisation proceeded culminating in the establishment of national airlines in almost all African countries.

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AIR TRANSPORT TODAY

Today, air transport remains an important means of stimulating social and economic development in Africa, as elsewhere in the world. However, its potential benefits have often not been realised in Africa because air transport services have remained fragmented and inadequate. It has been said time and again that Africa consists of the 'least developed' countries in the world. African countries are nearly always worst affected by the vagaries not just of nature but also of manmade world economic crises. Yet air transport, in spite of being the most expensive mode of travel, not only has to thrive in this environment but also has to assist in improving the wellbeing of the peoples and nations of Africa by accelerating continental and national development. During the past three decades of their existence, most African airlines have tended to depend on subsidies from their governments. Two decades ago, the fifteen national carriers which then existed in Africa realised the need for closer cooperation among African air transport enterprises with a view to achieving unity and developing safe, reliable, economic and efficient air transport services to, from, within and through Africa. It was this determination that gave birth to the African Airlines Association (AFRAA) on 4th April, 1968. The Association therefore concentrated on the task of harmonising the various activities of its member airlines in order to pave the way for a possible merger on a subregional basis. In this context, substantial achievements have been realised by the Association in harmonising the activities of its member airlines in the technical, operational, commercial, legal, financial and training fields. The recent conference of African Ministers responsible for civil aviation in Yamoussoukro, Côte d'Ivoire, on 6th and 7th October, 1988 reflected the political will of African states to amalgamate their airlines by means of a consortium, jointly owned subsidiary or merger.

THE ROLE OF AFRICAN AIR TRANSPORT

To sum up the above, air transport has an increasingly important role to play in the social and economic development of Africa. The alternative modes of transport have not changed appreciably and the bulk of the tourist trade, which forms a substantial source of revenue for very many African states, is entirely dependent on air transport.

Traffic carried on the North/South route by AFRAA member airlines increased from 7.6 million passengers in 1980 to 10.08 million passengers in December 1987. The increase in freight over the same period was from 220,000 tons to 355,000 tons; 87% of this was carried by AFRAA members.

If it were not for the depressed state of African economies and other setbacks like aircraft noise restrictions etc., both passenger and freight traffic would have grown much more rapidly. Nevertheless, air transport is still the best alternative mode of transport in Africa under the prevailing economic conditions.

DEREGULATION

By virtue of the international character of air transport, decisions and actions taken in one part of the world invariably have repercussions elsewhere. Such is the case with the deregulation of airlines which was initiated in the United States of America in 1978 and in response to which member states of the European Economic Community, following the adoption of the Single European Act of 1986, which created a single European air-space, have embarked on a programme of liberalising airline operations within Europe. The consequences of deregulation in the United States of America have been both positive and negative.
The positive ones include lower fares, greater flexibility in scheduling, increased traffic and greater efficiency of airline operations due to the removal of government restraints. On the other hand, there have been negative consequences such as the collapse of some airlines. Deregulation in Europe would have far-reaching consequences for Africa as Europe constitutes the major market for Africa's long haul air traffic.

MODERNISATION

A second challenge facing African airlines is the need to modernise their fleet so as to conform to the requirements of chapter II of annex 16 of the Chicago Convention of 1944 regarding permissible noise levels at European airports. African airlines have been banned from landing at European and American airports because they lack modern, quieter aircraft that meet noise standards which have been implemented at some of these airports from January 1988. The cost of re-equipping African fleets is very high and only very few airlines can afford to purchase new-generation and widebodied aircraft. The majority of small airlines will be condemned to the continued use of obsolete aircraft, a fact which will limit their market access in other parts of the world.
A third challenge for Africa is the emergence of the giant computer reservation systems in international airline operations. Either controlled by a single large American carrier or by a consortium of large European airlines, this system has had a revolutionary impact on product distribution in the air

transport industry. With the well-known display bias in favour of the airlines owning them and the influence they exert on travel agencies to favour the owner airlines, they pose a challenge of major proportions for airlines that do not have a stake in their ownership.

CONCLUSION

The facts enumerated above with regard to the international scene coupled with Africa's own problems, including lack of cooperation between airlines and coordination of the individual airline activities, the inflexible legal frameworks for operating companies, the difficult financial situations of African airlines, the use of obsolete fleets and the rather narrow market place they are confined to, all indicate one solution, i.e. amalgamation between African airlines. Perhaps the international and regional pressure on the individual African airlines is a blessing in disguise, as similar phenomena have in the past been a prelude to the birth of strong, economically viable and operationally sound interregional airlines. African air transport cannot remain in isolation while important steps are being taken in Europe, the USA and elsewhere and we therefore see a bright future for the development of African air transport as a solution to problems which will be easy to deal with once the political will to merge has been achieved.

AFRICAN AIR TRANSPORT STATISTICS

Table 1 – *Scheduled Traffic of Commercial Air Carriers, Millions of tonkilometers performed per region*

Africa	**1978**	**1983**	**1984**	**1985**	**1986**	**1987**
Passengers	2180	3095	3230	3315	3140	3200
Cargo	635	1080	1145	1165	1080	1210
Mail	40	55	55	50	50	50
Total	2855	4230	4435	4530	4270	4465
Index 1983 =	100	100	105	107	101	106

Total ICAO States	**1978**	**1983**	**1984**	**1985**	**1986**	**1987**
Passengers	84.335	107.280	115.145	123.330	130.945	142.550
Cargo	25.940	35.110	39.645	39.815	43.175	48.025
Mail	3.265	4.005	4.300	4.390	4.530	4.695
Total	113.540	146.395	159.095	167.535	178.650	195.270
Index 1983 =	100	100	109	114	122	133

Source: Civil Aviation Statistics of the World ICAO, 1987 (ICAO statistical yearbook).

Table 2 – *Air transport within Africa compared to world air transport*

• Passengers

	air transport within Africa	world air transport
Number of passengers in 1987	2,958,000	190,311,000
Average growth over 5 years (83-87)	2.2%	5.1%

The indexed growth within Africa over 5 years (basical year 1982):

1982	1983	1984	1985	1986	1987
100	102	111	117	110	111

• Cargo

	air transport within Africa	world air transport
Cargo (in tons) in 1987	70,456	5,611,097
Average growth over 5 years (83-87)	7.4%	7.5%

The indexed growth within Africa over 5 years (basical year 1982):

1982	1983	1984	1985	1986	1987
100	96	104	127	119	143

Source: World Air Transport Statistics 1987, IATA ("WATS")

Table 3 – *Air transport Europe-Africa vice-versa*

• Passengers

	air transport Europe-Africa	world air transport
Number of passengers in 1987	13,109,000	190,311,000
Average growth over 5 years (83-87)	0.2%	5.1%

The indexed growth Europe-Africa over 5 years (basical year 1982):

1982	1983	1984	1985	1986	1987
100	102	104	108	96	101

• Cargo

	air transport Europe-Africa	world air transport
Cargo (in tons) in 1987	472,622	5,611,097
Average growth over 5 years (83-87)	1.9%	7.5%

The indexed growth Europe-Africa over 5 years (basical year 1982):

1982	1983	1984	1985	1986	1987
100	105	105	107	104	110

Source: World Air Transport Statistics 1987, IATA ("WATS")

THE PROSPECTS FOR RAIL TRANSPORT IN INDONESIA

Dr. T. Tieleman*

Abstract

The prospects for rail transport in Indonesia

Indonesia is a very big country. Its population of 160 million makes it the fifth biggest country in the world. 65% of the entire population is packed into the 150,000 square kilometres of land that constitute Java (700 inhabitants to the square kilometre). The remaining Indonesian islands have no more than 30 inhabitants to the square kilometre.

Java has one interconnected rail network and Sumatra has three separate rail networks, chiefly concentrating on goods transport. It seems imperative to rapidly get on with the business of developing the existing Javan network. Unfortunately this network is for the greater part single-tracked. The Javan network is forced to play upon its strong points:

- commuter transport to, from and within the bigger cities
- intercity transport between the major cities.

The Javan transport policy could aim at:

- stimulating intercity rail traffic
- adapting any plans for the construction of new roads to favour rail transport
- switching buses from intercity routes to interregional routes
- gradually making intercity railway lines double tracked.

The funds available are limited and should be used in such a way that the best possible results can be achieved. It is vital for well-considered decisions to be taken both within the railway company and at government level. The various alternatives will have to be presented as clearly as possible to enable the best possible choice to be made.

INDONESIAN GEOGRAPHY AND INDONESIAN TRANSPORT REQUIREMENTS

Indonesia is a very big country. Its population of 160 million makes it the fifth biggest country in the world (after China, India, the USA and the USSR).

A peculiarity of the country is the fact that it is composed of some 3,000 inhabited islands, which does not make it the perfect place for a railway network. In fact it is only really feasible to think in terms of having railway infrastructures on the bigger islands, and the five largest ones which spring to mind in this connection are:

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- Irian Jaya (the western part)
- Kalimantan (the southern part)
- Sumatra
- Sulawesi
- Java.

The requirements for passenger transport on the one hand and goods transport on the other hand differ from island to island. As regards passenger transport, if one considers the pure potential which exists, then Java, with its population in excess of 100 million, is definitely in the lead. To put it another way: 65% of the entire population is packed into the 150,000 or so square kilometres of land that constitute Java. There are therefore roughly 700 inhabitants to the square kilometre: reason enough, one would think, to justify having a railway network. Just for purposes of comparison here are a few more statistics: New Jersey, the most densely populated state in the USA, has 200 inhabitants per square kilometre; the Netherlands, the most densely populated country in Europe, has 400 inhabitants to the square kilometre as does Honshu in Japan. Taken on average, all the remaining Indonesian islands have no more than 30 inhabitants to the square kilometre which (except in some of the bigger cities) is nowhere near enough – by international standards – to justify having a complete railway network for passengers.

Where goods transport is concerned matters are slightly different. In the more densely populated regions (i.e. Java in this instance) the demand for goods transport is always great. In thinly populated parts by contrast there is only really a demand for freight transport facilities when great quantities of agricultural produce and/or minerals need to be transported. Moreover when such goods are produced in areas where waterway transport facilities are poor or non-existent, rail transport scores high – especially where the transport of bulk goods is concerned (i.e. goods that are of large dimensions, are exceptionally heavy or are of relatively low value per ton). Apart from Java (see above) it is Sumatra that particularly qualifies – for the reasons just mentioned – for the laying of railway lines for the transport of goods, namely coal, cement, rubber and palm oil.

Having said all this one can easily understand why the present situation is as it is:

a Java: one interconnected network for
- passenger transport
- goods transport

b Sumatra: three separate networks, chiefly concentrating on goods transport
- South Sumatra: coal
- West Sumatra: coal and cement
- North Sumatra: rubber and palm oil.

In the remainder of this article we shall be examining the present situation as outlined above and taking our plans from there. It would seem that at the moment it is more important to improve the four existing networks than to extend them into other regions.

THE ROLE OF RAIL TRANSPORT

The main reason in favour of retaining the railway network in Java is for the sake of passenger transport. As has been mentioned, Java is one of the most densely populated areas in the world. By world standards therefore it should also possess a well developed railway system.
The Javan network consists of 4000 km of railway lines which a mere 100 km is double tracked. At the same time the island contains the same number of kilometres of four-lane motorways. For the rest the cities are linked together by two-lane roads and single-track railway lines, which is a far from satisfactory situation. To put it another way: if in 30 years' time one in three Javans runs a car there will be some 35 million cars on the island (even assuming no increase in the population). If one takes 4 metres as the average car length this will amount to more than 140,000 km of cars. Java is 1000 km long so there would have to be 140 roads running from west to east simply to park all these vehicles bumper to bumper. At present there are only 10 traffic lanes weaving from west to east across Java.
In view of the situation just explained it would indeed seem imperative to rapidly get on with the business of developing the existing Javan railway network, especially in the areas where passenger transport by rail figures prominently and is badly needed, in other words:

- for commuter traffic in and around the major cities
- for long distance intercity transport

Considering the acuteness of the traffic problems in Jakarta and Surabaya, expansion of good commuter rail services is certainly urgent.
There are also plenty of good reasons for improving the intercity rail connections. Unfortunately the Javan network is for the greater part single-tracked which means that its capacity is very limited. If the motorway network were to be extended before the railway network there would be a serious danger that first buses and later cars would gradually seize the long-distance transport market that now belongs to the train. On the face of it this would not be disastrous provided that the buses kept up their services but if the private car usurps the bus market the traffic situation outside and in particular within the major cities will soon become impossible.

The conclusion therefore is that the railway network must be improved as quickly as posible.
Great as the transport problem may be in Java today it can only get even worse in the future. Has history not shown us as National Product per head of the population rises, this is accompanied not by a parallel but rather by an exponential rise in demand for transport? Indonesia, Java included, is developing fast. We may therefore expect to see many more changes. One major way in which the events of the future can be shaped lies in striking the right balance between rail and road infrastructures. Naturally this requires a good understanding between the two sides. Unfortunately such harmony is made more difficult to attain by the fact that in Indonesia roads and railways fall under two different ministries.
Rail transport is quite different now from a hundred years ago when the railway network was just being built in Indonesia. Whereas in the early days railway companies were 'general overland carriers' and even displayed monopolistic traits, today railways are forced to play upon their strong points – because of rivalry from road transport – and become 'specialized carriers'. Their strong points in the new situation are as follows:

in passenger travel
- providing transport within, to and from the major cities (conurbation transport);
- providing transport purely between the major cities themselves (intercity traffic);

in the goods transport sector
- providing transportation of bulk goods from one dispatcher to one consignee;
- providing long-distance transport.

THE TASK AHEAD

Those responsible for determining Indonesia's transport policies are going to have to find ways to emphasize the strong points of transport by rail and road so that they can create a transport policy in which both forms of transport are harmoniously integrated. So if rail transport specializes in its stronger aspects on a densely populated island like Java the emphasis will be upon:
- commuter transport to, from and within the bigger cities;
- intercity transport between the major cities.

Where the first aspect is concerned this will relieve congestion problems in the big cities. Experience elsewhere in the world has taught us that measures

of this kind almost always require substantial governmental contributions. That was certainly the case with the Jabotabek project, a project that created much better communications between the cities of *Ja*karta, *Bo*gor, *Ta*nggerang and *Bek*asi. As for Javan intercity transport, i.e. connections between all the cities, the situation is rather different. The railways could fulfil an important role in western Java where the Jakarta-Bandung route is concerned and also between Semarang, Surabaya, Yogyakarta and Solo, but bus services are of equal importance for the latter routes. The situation cannot be compared with ours in the Netherlands where scheduled bus services tend to be run on the more intricate regional routes and not on the longer intercity ones. Train services could be established in Java that would go a long way towards resolving the massive transport problems on the busier intercity routes. However, such plans would require huge adjustments on the part of the Indonesian railway company and on the part of the country's policy-makers.

For train services on the island of Java this could mean that the company's objectives would become more concerned with the duties that the railways are best suited to fulfilling. Here one should not forget to consider the functions of the railways that were important at one point in the past but which, because of road transport developments, have had to change or are being superseded. In actual fact what is referred to here is really a form of corporate planning that should permeate through to the level of day to day company decision-making. Corporate planning therefore also involves studying replacement and expansion projects to see if they comply with the objectives which have been decided upon. That would also imply that Indonesia is becoming more selective about the help it is offered and that assessing its own aims is becoming increasingly important.

REASSESSMENT

Under such circumstances it would seem logical to thoroughly review the whole politics of Indonesian transport. The idea would be to come up with a transport policy where the railways would concentrate on doing what they are good at while transport operations that can best be carried out by road are left to that mode of transport. It goes without saying that in weighing up these matters not only business economic factors should be taken into account but, equally importantly, social and environmental considerations as well. Such a transport policy could aim at:

a encouraging those who travel between certain of the larger cities to opt in the first place for train transport and in the second place for bus transport;

b adapting any plans for the possible construction of new roads to fit in with the policy stated in point **a**;

c gradually phazing out buses on intercity routes (present situation) and switching them (looking to the future) to interregional routes;
d providing the means for the intercity rail connections to be gradually expanded and ultimately all made double-tracked.

In pursuing these policies the right conditions will be created for absorbing the massive flows of traffic that are most certainly going to develop in the years to come as Java continues to develop in many respects.
It will not be easy to put these policies into practice but it is worth trying because otherwise the already overcrowded roads of Java will become even more congested.
The planning method could be based on the 'systematic' approach whereby a specific amount of data (on quality and quantity) would be amassed on each route expected to be vital in the future, i.e.:
a the infrastructure available;
b the available amount of rolling stock;
c the personnel available;
d the present transport capacity level;
e the transport capacity wished for.

If there is a big discrepancy between **d** and **e** then efforts should be made to see if, by making small adjustements in points **a**, **b** and/or **c** it is possible to eliminate these differences. The pros and cons of the various alternatives should be weighed up. In principle it would be best to pick the cheapest solution which meets the demands laid down and in this way ensure that:
- the railways centre their attention on the sections of track that are of greatest potential importance;
- they deal sparingly with the limited financial resources available to them.

PASSENGER TRANSPORT BY RAIL

The success of the railways' policy and also of the government's approach may be gauged by scrutinizing the marketing results. In the long run what it is all about is seeing where the market share can be increased. Viewed from the customer's point of view the one that offers *relatively* the best price/quality combination will be the one to increase its market share. Absolute prices or quality are not important: what really matters is how prices and quality compare with the competitor's prices and quality.
At the moment the journey from Jakarta to Bandung, partly along a single-track line, takes 3 hours. The quality offered is good compared with that of the bus or private car (both of which take longer and are more dangerous

on the whole). Bus (and private car!) travelling frequencies are much higher than the train frequencies. It is cheaper to travel by bus than by train but more expensive to travel by car. At present moreover there are not all that many people in Java who have a car of their own.
This existing balance would of course be radically disturbed if a four-lane (180 km long) motorway were constructed between Java and Bandung. The relative travelling time advantage of the train, which at present provides a non-stop service between Jakarta and Bandung, would be lost – in fact it would be replaced by a relative disadvantage. The bus would immediately be able to expand its market and, in time, as the number of car owners increases, the share of the market taken up by the private car would also increase. The increase in motorized traffic would in turn put pressure on the roads in the inner cities of Jakarta and Bandung.
If all these developments are viewed as being undesirable then it would be wise first of all to make the Jakarta-Bandung railway line double tracked. This would increase both speed and capacity. Consequently the train would be able to substantially increase its share of the market, at the cost of the bus and the private car.
Not only the railway company but also the government appears to have at its disposal vital marketing instruments. What must we do first?

- widen the motorway from 2 to 4 lanes?
- expand the railway from 1 to 2 tracks?

The way this question is answered will – in large degree – determine the character of transport in Java in the decades to come. More to the point, this will not only apply to the Jakarta-Bandung route but to many other similar routes elsewhere where the question already being put is: should the roads be expanded or the railways?
Incidentally, things are no different in the Netherlands. Admittedly the standards of transport are higher here but the marketing game is always played with relative prices and quality levels. In the Netherlands too it is the government that has the main instruments to influence options as regards mode of transport.

GOODS TRANSPORT BY RAIL

In Java it is, thanks to the fact that there is a railway network for passengers, that facilities for transporting goods by rail exist at all. In Sumatra however the reverse is largely true. The three separate railway networks on that island have come into being primarily because of demand for goods transport. Whether or not these lines have a future really depends on whether or not

they can compete with road transport. (Topographical considerations rule out the danger of water transport constituting a serious threat here). In west Sumatra the advantages of transporting coal and cement (in particular) by rail outweigh the advantages of transporting such products by road because of the argument that sustained intensive use of the highway by heavily laden lorries would quickly lead to very high road maintenance costs. In south Sumatra where coal has to be transported for a distance of 400 km before reaching the coast the arguments in favour of rail transport are similar. In recent years this railway network has been vastly improved so that now longer trains and greater axle loads can be taken on the reinforced tracks. This has given the train additional advantages over road transport, making it a bigger rival.

THE POSSIBILITIES FOR THE FUTURE

Indonesia is forging ahead with a variety of developments. Once the National Product per head of the population starts to increase there will also be a steadier increase in the volume of transport. It is always very important to critically assess all the aid that is offered so that, using the means available the best possible results can always be achieved. Hence the fact that it is vital for careful decisions to be taken both within the railway company (corporate planning) and at government level (traffic and transport policies). The various alternatives will have to be presented as clearly as possible while at the same time taking into account all the relevant variables.

EUROPARUBRIEK

(EUROPE COLUMN)

The integration of European transport, and transport in European development aid in particular, plus the XIth ECMT Symposium on "tools for the transport of tomorrow".

Dr. Mr. J.G.W. Simons*

FOREWORD

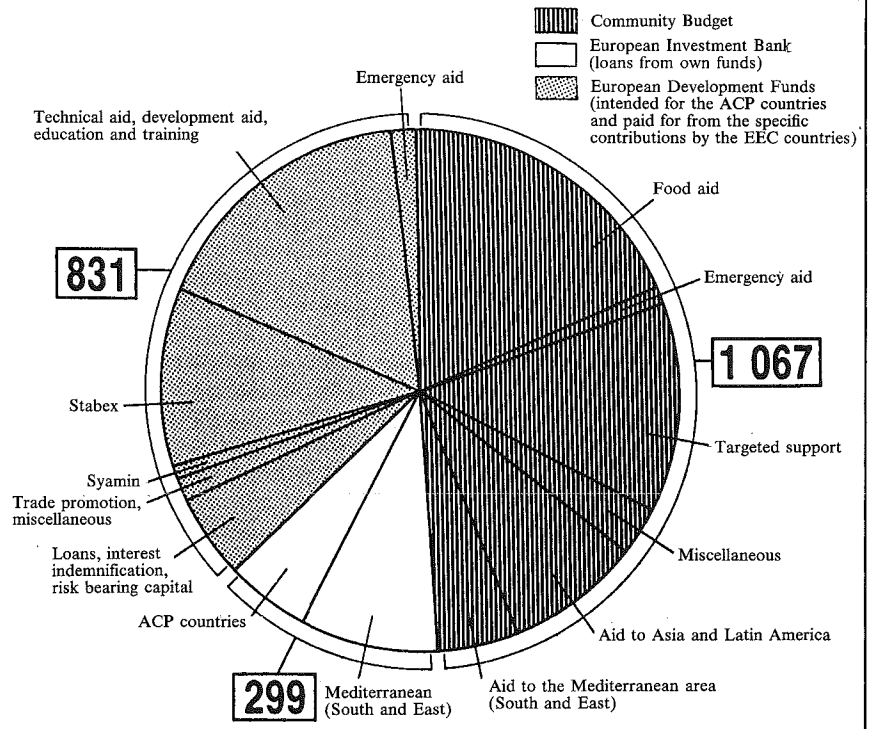
As already indicated by the headline, in this issue the Europarubriek (Europe Column) is in two separate parts. The first complements the theme of this issue with some reflections on the transport aspect of the development aid work carried out by the European Community; in view of its importance and topicality, the second part consists of a summary of the XI Symposium – on Theory and Practice in Transport Economics: tools for the transport of tomorrow, from the European Conference of Ministers of Transport (ECMT). It is hoped that the second subject will also have some effect on European development aid – although probably limited in the first instance, to the exchange of know-how – by contributing to the efficient and rapid development of transport capabilities and logistical systems in those countries.

TRANSPORT AS A PART OF THE DEVELOPMENT AID FROM THE EUROPEAN COMMUNITY

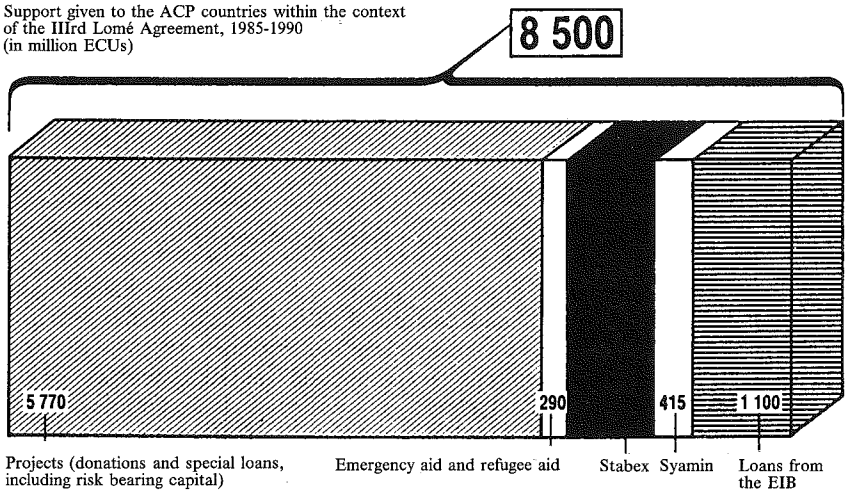
It is remarkable that the European Community has formulated no general reference for its activities in development aid, although there is some coordination and consultation. All the more so since this is usually the case. The figures shown here give an impression. The efforts of the Community, whose aid in financial terms amounts to 13% of the total support by the member states, means that work is not duplicated with that done by the member

* This Europe column would not have been possible without the help of Prof. W.A.G. Blonk, Division Head for Southern Africa at the European Commission, as well as that of the secretariat of the ECMT, who assisted me greatly with information and literature. I wish to express my thanks here for their support.

Financial support provided by the European Community to the Third World
(in million ECUs, 1986)



Support given to the ACP countries within the context of the IIIrd Lomé Agreement, 1985-1990
(in million ECUs)

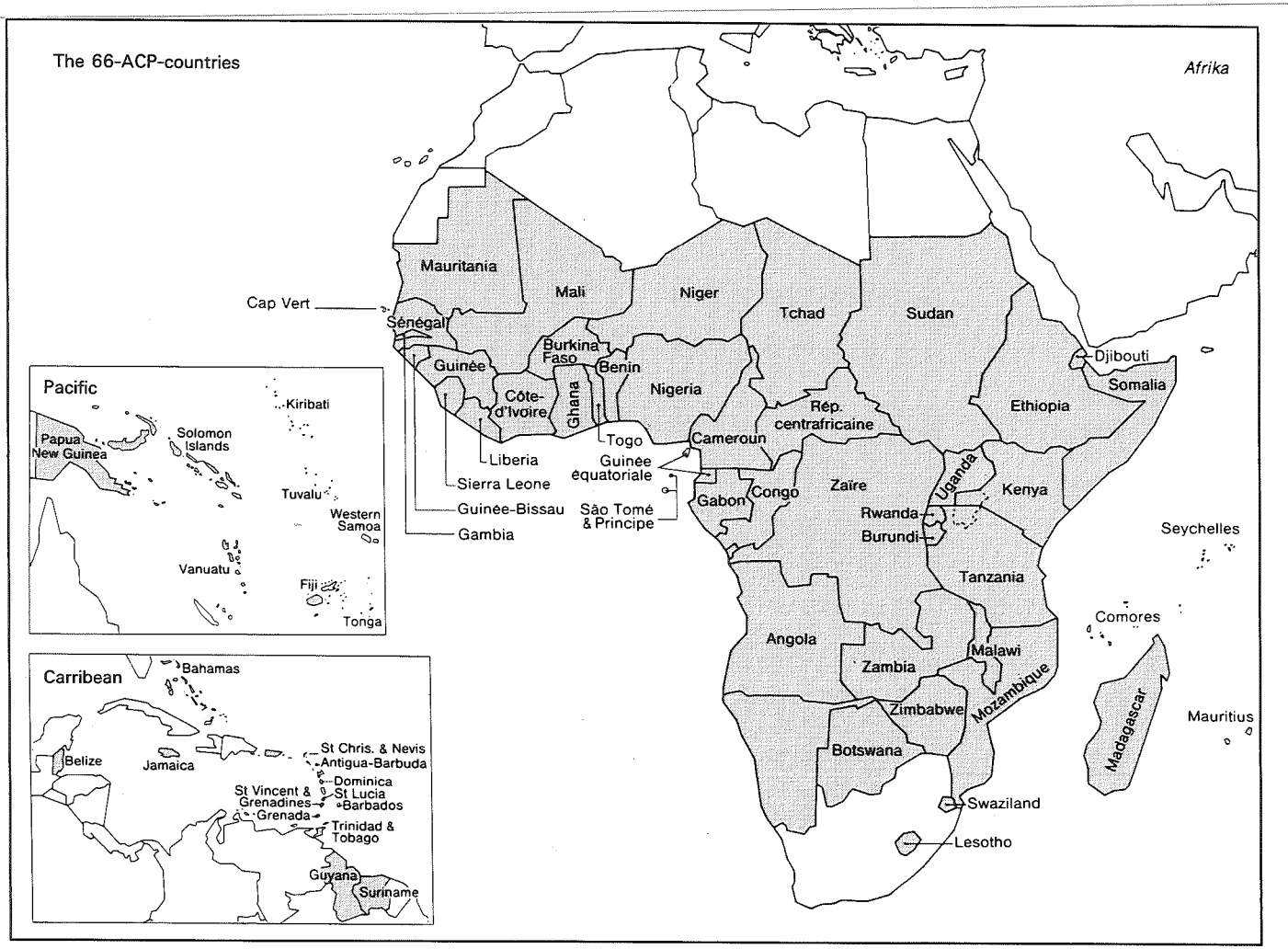


states. The intent is precisely to complement and coordinate their efforts. In this way the member states solidly participate at the big international meetings on development, at the Euro-Arabian dialogue, in the North-South dialogue, etc. The Community often participates on behalf of the member states, and coordinates their policy on the Third World more and more.
At the IIIrd Lomé Convention – which came into force on May 1, 1986 and continues up until 1990 – it was agreed with the ACP countries, 66 countries in Africa, the Caribbean and the Pacific (see map), that far more emphasis would be placed than has been thus far on improving the existing infrastructure and that new projects would be considered only as a second resort. It was recommended that the developing countries concerned should be prepared and able to meet the operating costs for management and maintenance. After all, when this does not happen in tropical areas, in ten years time the road is overgrown and can no longer be found. Great importance was also attached to education and the teaching of skills to employees. Therefore, the donor countries will have to be actively involved in training staff, such as drivers, engine drivers and road and railway maintenance staff. There should also be sufficient spare parts available for repairs. A national transport policy should be drawn up about the organisation of the market, to avoid unhealthy competition between the various modes of transport. Regional air transport could be considered for the larger developing countries, so that passenger and goods transport can be made better, cheaper and faster. A system with an imposed modal split could possibly be advantageous.
This is in sharp contrast to what occurred during the first stage of independence in some countries. The emphasis then was placed on building new infrastructure, such as road and rail links as well as harbours and airports, in which the commercial interests of European countries were not entirely uninvolved. After all, the private companies concerned were only interested in large and expensive projects. It was not examined in the first place whether a given project was actually a high priority to the developing country itself, or whether, after completion, it could be technically and commercially managed and maintained by that country. A good example of this, is the Tanzania-Zambia railway, built during the seventies by the Chinese and ten years later it was ready for complete renovation.
Inasmuch as the above relates mainly to the development of transport within a given country, so the development of relations between these countries and the rest of the world also requires attention and action, all the more so, since such developments will be to their mutual advantage. In this respect it is vitally important, particularly for the land-locked countries, to have a good infrastructure, to, from and even within, their neighbouring countries. Thus, Zimbabwe and Zambia, for example, are dependent on the transport

infrastructure of other southern African nations for 80% of their foreign trade. The European Commission links transit agreements to its financing of transnational infrastructure, to ensure better use of the corresponding infrastructure project. Such transit agreements contain agreements about the use of the given infrastructure, as well as the transport conditions and tariffs, coordination between the various methods of transport and prevention of unnecessary delays at the borders.
In this context, aviation, and intraregional aviation in particular, should not be overlooked. At present, air links between the various African countries are still poor. Sometimes, to fly between one country and another, it is necessary to go via a European airport. Therefore, better coordination and expansion of the airline network between these countries is required, particularly in Africa.
Air traffic and shipping are particularly important in the relationship with the rest of the world. First of all, flag reservation by developing countries for their goods flows should be open to discussion. Such obligatory routing usually leads to worse and more expensive transport. Without exposing the developing countries to unlimited competition from the shipowners of the developed countries, they will eventually benefit from the free market. The developing countries would benefit from properly trained shipping personnel, which could be provided specifically by the industrialised countries. The same also applies to port personnel of course; exchanges are already being made between harbours (e.g. Amsterdam-Beira and Liverpool-Maputo). Once this has been accomplished, at a later stage the developing countries can build up their own merchant fleets, which will give them a reasonable share in the transport revenues. Even at this stage, the shipping conferences could abolish the tariff discrimination which still exists between the developing countries and the industrialised nations. Thus, the tariff difference between a container to Europe from either Beira or Durban often cannot be explained on grounds of technical transport matters.
Improved cooperation in aviation, particularly in intercontinental transport, is desirable. Perhaps the liberalisation in intra-European transport could be an example of this.

XIth ECMT SYMPOSIUM: TOOLS FOR THE TRANSPORT OF TOMORROW.

The symposia organised by the ECMT every three years, bring together around 400 people involved in scientific research, from the national and international authorities as well as the professional transport organisations and associations.


The 66-ACP-countries
Afrika
Mauritania
Mali
Niger
Tchad
Sudan
Cap Vert
Sénégal
Burkina Faso
Guinée
Bénin
Côte-d'Ivoire
Ghana
Nigeria
Rép. centrafricaine
Ethiopia
Djibouti
Somalia
Togo
Cameroun
Liberia
Sierra Leone
Guinée-Bissau
Gambia
Guinée équatoriale
São Tomé & Principe
Gabon
Congo
Zaïre
Uganda
Kenya
Rwanda
Burundi
Tanzania
Seychelles
Comores
Angola
Zambia
Malawi
Mozambique
Madagascar
Mauritius
Zimbabwe
Botswana
Swaziland
Lesotho
Pacific
Kiribati
Papua New Guinea
Solomon Islands
Tuvalu
Western Samoa
Vanuatu
Fiji
Tonga
Carribean
Bahamas
Belize
Jamaica
St Chris. & Nevis
Antigua-Barbuda
Dominica
St Vincent & Grenadines
St Lucia
Grenada
Barbados
Trinidad & Tobago
Guyana
Suriname

The general theme of the XIth Symposium – held on this occasion in Brussels and opened by the Belgian Minister of Transport, Mr. Dehaene – was tackled on the basis of five sub-themes. These being: the major European links, the problems relating to the maintenance and revitalisation of the infrastructure, financing the running of the transport system, the quality of life and the social cost as well as logistics and information technology.

I The major European links

With the steady increase in international traffic, it is feared that by the turn of the century problems will arise which will lead to economic losses due to the increase in the cost of transport. The increasing expenditure on fuel, mounting time losses and reduced return on vehicles will result in the need for greater stocks of manufactured goods and a geographic restriction of markets, and eventually a hindrance to international trade. Technical improvements may contribute to better use of the infrastructure capacity, but the results of this will be limited. In fact, the problems of saturation are localised in space and limited in time, therefore solutions must be sought in three areas.
Firstly, the operation of the price mechanism should include the use made of the infrastructure, especially during the traffic peaks, such that the price should be related to the costs incurred. Secondly, a substitution of modes of transport could be considered, if another form of transport offers transport capacity of a comparable performance quality. Finally, investment in capacity may be possible, subject to an investigation into the economic and financial consequences. An up-to-date balance sheet should show the return on such investments by comparing toll revenues with expenditure on investment and maintenance.

II Maintenance and revitalisation of the infrastructures

Statistics show that over the last decade investment in infrastructure in the ECMT countries has been diminishing. Since 1980, expenditure on maintenance of the road transport infrastructure has not kept pace with the increase in traffic. If this trend continues, then in the longer term a discrepancy could arise between the development of transport and that of the infrastructure.

In the ECMT countries during the period 1975-1984, the roads absorbed 73% of the investment in infrastructure for land transport, the railways 24%, and the waterways 3%.

The future of waterway transport depends mainly on its ability to adapt to the logistical requirements of the shippers. This development lies in the use of container and ro-ro shipping and in increased specialisation of shipping. The development of multi-purpose terminals is also one of the investments required to improve the productivity of this mode of transport.
The present network for rail transport dates largely from the 19th century, while the requirements of the shippers and the level of transshipment techniques have changed greatly, which explains the breakthrough of competing modes of transport. These points emphasise the pressing need for revitalisation investment, such as high-speed lines.
Predicting infrastructure requirements is, of course, complex. Various criteria demand selective investment and the application of a specific methodology to arrive at an optimum choice.

III Financing the running of the transport systems

Within the framework of a free economy, the companies taking strategic decisions balance the relationship between supply and demand, subject to competitive harmonisation by the authorities. Within that framework, the finances of the companies are based on their policies, and therefore, the use made of their means of production. However, there is the issue of how the companies adapt to the changes in the social and economic environment. In the area of road transport it is noticeable that there is insufficient training of the management of small businesses. One of the possible actions which could be undertaken is to promote the grouping of these businesses around management centres, this would enable them to make the best possible use of their capacity and to have access to external sources under conditions comparable to those of larger businesses.
The railways should aim for a more efficient operation and better adaptation to market requirements, to avoid becoming more dependent on subsidies. On the subject of urban transport, the need for finance greatly increased during the seventies due to changes in the urban structure. Furthermore, the cost of transport by private car has remained stable, whereas the prices of public transport have kept up with wage increases. Good public transport services, particularly railways, are needed to prevent a fragmentation of activities and to safeguard the attractiveness of town centres. Generally, transport policy will bear fruit if it is integrated with the long term planning and economic management of the urbanised areas. The aim should be to adapt prices to the various demand segments. Finally, by a policy of requesting quotes and programme contracts, the mediation between the organising authorities and the operator will be clarified and the existing means can be more efficiently used. Then the authorities can commit them-

selves to covering the losses resulting from the choices they have made, instead of these having to be met by the operator who will be striving for productivity targets.

IV The quality of life and the social cost

At present, the safety standards of the different modes of transport vary widely.
Road transport safety policy should take various factors into account, such as human behaviour, changes in the infrastructure, vehicles and the environment. The social and economic costs of road accidents include lost production, immaterial damage, health care, material injury, cost of traffic policing and the legal and insurance costs. Among all these, the social cost of road accidents is very high and illustrates how difficult it is to provide adequate safety measures when the human factor plays a major part.
A comprehensive estimate of the cost of road transport should include all the associated negative effects, such as pollution, noise and use of space. It is often difficult to establish a causal relationship between the act of polluting and the resultant damage. This conclusion explains why the extent of the problem has been underestimated for so long. Therefore, any progress on the environment will enable resources to be secured for the future.
Truck drivers' cabins constitute one aspect of the factors which influence safety and the quality of life of those affected. Investigations show that truck drivers often work long hours with very short rest periods. The effects of these specific working conditions on the health of the drivers are not known. This requires new research. With regard to safety, it has been shown that long working hours – 14 hours or more – double the risk of accidents. Therefore legislation should restrict not only the time on the road but also the time spent working.
By contrast, the railways have integrated safety requirements into their operations; the maintenance of stock and equipment is subject to stringent standards.

V Logistics and Information Technology

In the goods transport sector the demand for a logistical type of operation is growing fast. This implies not only new activities such as invoicing and storage in bonded warehousing, but also qualitative requirements on such matters as transport itself. These requirements concern the reliability of the transport services, their flexibility and their frequency. The increase in transport costs arising out of these new requirements is easily offset by savings due to the optimisation of production and distribution chains.

Therefore, the logistics systems are a very useful tool in production and distribution, now and in the future. These logistical processes are possible only if advanced information systems are introduced which serve several different businesses and which ensure the control of their production cycles. These information systems and the logistical operations differ according to the demands of the business. The cooperation of the businesses centered around the information systems is a requirement for the future and confronts the authorities with the issue of compatibility of technical standards between different types of equipment and technology. Therefore, normalisation and standardisation are necessary to make the best use of the capabilities of these systems.

It is also important that staff are properly trained, so that the progress of logistics is not impeded by a lack of expertise. With technological progress, information will become cheaper, more complete and more accurate. This will also result in the modes of transport becoming more complementary and, at the same time, specialisation in the main areas of any given mode of transport.

STATISTISCHE RUBRIEK

(STATISTICAL COLUMN)

Drs. J. Schalen

TRANSPORT TO AND FROM THE DEVELOPING COUNTRIES

When addressing the topic of Transport in Developing Countries in a statistical context, some form of classification is needed. General transport terms, relating to transport to and from countries (developing or not), such as legislation and regulation, logistics and technology, are usually used without indicating the specific country. If statistics are to be used to create a numerical impression of transport to and from developing countries, then we will first have to decide which countries should be included. A list of countries which could be considered as developing countries would fall outside the scope of this statistical paper. Therefore, a presentation by continent or sub-continent was decided upon, to give an indication rather than an exact representation of the transport involved.
Within the scope of this presentation, there is a choice between an overall or a more detailed overview. Both alternatives are valid, but for the purposes of this publication a global overview is preferred. The import/export statistics, based on customs documents, have been used as the source. Readers interested in the details are referred to the annual publications in the Import/Export Series.
Table 1 indicates transport to the Netherlands over the last five years in millions of tons.

Table 1 – *Transport to the Netherlands 1983-1987*

	1983	1984	1985	1986	1987
	million tons				
TOTAL	304	327	340	347	337
Europe	159	167	171	172	165
Africa	36	39	40	40	38
North America	34	33	35	32	30
Latin America	31	37	41	37	35
West Asia	27	29	27	40	39
Rest of Asia	11	11	12	13	15
Oceania	6	12	13	13	15

The leading position of Europe (approx. 50% of the total originates in Europe) would appear to be unassailable. During this period the differences per continent appear to be constant, however, it should be remembered that Table 1 shows the weight transported in millions of tonnes. Besides the steady supply of imports from Europe, Africa and the Americas to the Netherlands, the increase from Asia and Oceania is remarkable. In the case of West Asia this may be due to a recovery in the oil market. A glance back to 1975, i.e. a year after the oil crisis, shows that imports from West Asia to the Netherlands amounted to 89 million tons.

Table 2 – *Transport from the Netherlands 1983-1987*

	1983	1984	1985	1986	1987
	million tons				
TOTAL	236	260	264	270	265
Europe	211	232	239	245	240
Africa	5	4	5	4	4
North America	8	10	9	10	10
Latin America	2	2	1	2	1
Asia	10	11	9	9	9
Oceania	1	1	1	1	1

The share of countries outside Europe in the transport of goods from the Netherlands has remained constant in recent years and is also relatively unimportant. Therefore, we will direct our attention exclusively to the transport of goods to the Netherlands.

Table 3 provides a classification of goods imports in 1985 subdivided according to the ten chapters of the NSTR.
Although 50% of the total supply comes from Europe, the differences between the chapters are remarkable. Almost all raw minerals, other goods and piece-goods come from Europe. Whereas a considerable quantity of ores (more than 20 million tons from South America) and agricultural produce are imported from outside Europe. Roughly 50% of oil comes from Europe, 25% from West Asia, 20% from Africa and 5% from the remaining areas.
To conclude, some remarks about the countries in these continents and sub-continents:
The oil imported from North Africa mainly comes from Algeria and Libya.
The imports from West Africa are mainly ores from Liberia and Mauritania and oil from Nigeria.
The goods imported from South East Asia are mainly agricultural produce from Thailand and other foodstuffs, mainly from Indonesia and Malaysia.

Table 3 – *Transport to the Netherlands in 1985 per chapter.*

	Total	Agricultural produce	Other food stuffs	Sold fuel	Oil and oil derivatives	Ores and metal residues	Metals: semi-finished metal goods	Raw minerals and construction materials	Fertilizer	Chemical products	Other goods and manufactured goods
	1000 tons										
TOTAL	340098	20204	37562	22447	109587	51510	10365	42343	6570	24726	14785
Europe	171017	9888	12914	6804	53878	6348	8531	40543	2044	17034	12234
Africa	39890	537	1065	3966	19437	10333	693	489	2762	534	76
North Africa	13533	185	60	–	10979	21	89	88	1877	216	17
West Africa	16480	114	503	2	6983	8247	5	45	485	89	8
Central Africa	1873	152	178	–	1453	54	25	0	–	0	9
East Africa	263	23	191	3	0	28	8	4	–	1	6
South Africa	7742	63	133	3961	22	1983	565	352	400	228	36
North America	35421	2349	10188	7000	2638	6776	377	772	851	3593	877
Central America	5738	122	178	0	4930	64	42	84	–	277	41
South America	35385	1014	9068	382	3079	20463	488	27	20	752	93
Asia	39795	5967	3711	62	25622	422	180	394	894	1091	1451
West Asia	27429	105	71	–	25466	36	18	41	894	764	34
South East Asia	9890	5788	3266	3	126	228	80	45	0	103	251
North East Asia	2476	75	374	59	31	159	82	308	0	224	1166
Oceania	12851	327	435	4234	3	7103	55	35	0	646	14

CONCLUSION

This statistical report on Transport to and from Developing Countries is not fully up to date on the matter of imported goods because more recent detailed statistical information had not been published at the time of writing.
As it was not the intention to provide a complete picture, this overview gives only an indication of the types and quantities of goods involved in transport from developing countries.

BOEKBESPREKINGSRUBRIEK

Yearbook Maritime Law 1985–1986, Volume II. General Editor Ignacio Arroyo, Kluwer Law and Taxation Publishers, Deventer, 1988, IX + 445 blz. Prijs: *f* 175,- excl. O.B

1 Na de publicatie van deel I over het jaar 1984 – zie recensie in TVW 2/88, pp. 174–176 – is onlangs het volumineuze vervolg van deze nieuwe reeks verschenen. Deze keer dient de lezer het zonder voorwoord van Arroyo te stellen.
De leading articles, vormende hfdst. 1, zijn van zijn hand (International Conventions and Domestic Law/Special Reference to Limitation of Liability for Collission) en voorts van William Tetley (Arbitration Clauses in Ocean Bills of Lading), Tameyuki Hosoi (Priority of Maritime Liens in Japan: The 'Saint Shipping Lines' Case), Tormod Rafgard (The 1986 U.N. Convention on Conditions for Registration of Ships: tanker owners ' perspective), Francisco Ramos (The Relationship between Civil and Criminal Actions and Arbitration Agreements in Maritime Disaster Cases under Spanish Law) en van Dolly Richter-Hannes (Provisions on Limitation of Liability in International Transport Conventions and the Conversion of These Amounts into National Currencies).
Het tweede hfdst. betreft een overzicht Comparative Law van een groot aantal landen. Daarin vindt men een résumé van wetgeving, (wetenschappelijke) litteratuur en casuïstiek. In de Nederlandse bijdrage van Mr. V.M. de Brauw trekt o.a. de aandacht het *Piscator*-arrest van ons hoogste rechtscollege HR 1 febr. 1985: zie WPNR 5754, p. 628. Terzake van de uitspraak *EA*, rb. Rotterdam 7 december 1984, verwijs ik naar de *Rechtsvraag Zeerecht* in Ars Aequi 37(1988) 2, pp. 128–133.
Het derde hfdst. geeft een revue van de relevante besluitvorming en werkzaamheden van de inter- en non-gouvernementele organisaties als UNCTAD, UNCITRAL, IMO, ILO, OECD, CMI, UNIDROIT, ISF, FIATA en BIMCO, terwijl Arroyo en Matthew D. Schreiber internationaal belangwekkende jurisprudentie voor het voetlicht halen in hfdst. 4.
Het vijfde gedeelte van het boek beschrijft Current International Events, zoals ratificaties, toetreding tot de Verdragen/Protocollen en in hfdst. 6 Documentation is opgenomen de UNIDROIT Draft Convention on Civil Liability for Damage Caused by Small Craft; voorts wordt wel aangekondigd de EG directive van 13 augustus 1985 aangaande het dumpen van afval op zee, maar voor de tekst wordt verwezen naar PB EG, C245/23, 26 sept. 1985, waarbij natuurlijk niet eenieder die tekst voorhanden heeft.

Een geselecteerde Bibliografie in deel 7 besluit Kluwers tweede *Yearbook Maritime Law* (1985–1986 II YML).

2 Ik beperk me tot een enkele opmerking. De belangrijkste daarvan is wel dat er in de kritiek op deel I (1984 I YML) van Robert Margolis in Lloyd's Maritime and Commercial Law Quarterly 1988, Part I, Febr. 1988, pp. 110–112, betreffende de moeilijke toegankelijkheid een kern van harde waarheid schuilt. Ook dit 1985–1986 II YML gaat mank aan een goede ontsluiting. Daardoor boet deze interessante pennevrucht beslist aan waarde in en mijn suggestie is dan ook om in deel III en volgende hieraan meer aandacht te schenken.

Bij de opsomming van Case Law in hfdst. 4 mis ik een duidelijke referentiekader (*iurigram*) naar de relevante wets- en verdragsartikelen, die gemakkelijk hadden kunnen worden opgenomen in een (cursief) kopje boven de uitspraken.

Ik kan me niet aan de indruk onttrekken dat uitbreiding van het aantal leading articles (ze hoeven niet zo lang te zijn) de intrinsieke waarde zal verhogen. Echter, ik teken daarbij aan dat er dan wel een meer gerichte aanpak inzake de thema's gehanteerd dient te worden.

3 Voor mij springen de bijdragen van Arroyo en Tetley er positief uit. Goed gedocumenteerd en blijk gevend van een gedegen vakkennis. Voor de aviation branch is Richter-Hannes' analyse over (het gebrek aan) uniformiteit inzake de (uitleg van de) internationale verdragen, zoals o.a. het Verdrag van Warschau lezenswaardig, ofschoon er niet echt veel nieuws wordt toegevoegd. Wel mis ik een verwijzing naar de Franklin Mint case!

MR. DRS. F.A. VAN BAKELEN

Eléments de droit aérien door Prof. Dr. E.R.C. Van Bogaert. Uitgeverij E. Storia-Scientia te Brussel, 1987, X + 446 blz. Prijs Bfrs. 4.120.

1 Van de emeritus hoogleraar (Gent en Vrije Universiteit Brussel) en Belgische oud-minister van onderwijs Van Bogaert is onlangs verschenen opgemelde, van grote eruditie getuigende omvangrijke publicatie. Het is een zowel publiek-, als privaatrechtelijk werk van standing.

In fraaie Franse volzinnen schetst auteur het kader van de internationale luchtvaartwetgeving en voegt daaraan zijn eigen opinie toe. Na een verhelderende inleiding terzake van het begin van de luchvaart en de daarmede verbonden eerste regulering krijgen de bekende instituten ICAO, IATA, IFALPA ruime aandacht, terwijl mogelijk het bestaan van de International Union of Aviation Insurers (IUAI) minder wijd verbreid is. Het puur

institutionele aspect wordt als volkenrechtelijk verschijnsel in hfdst. 3 afgesloten met een overzicht van regionale organisaties in Afrika, Latijns Amerika en dichter bij huis Eurocontrol en de EG.
Vervolgens worden in hfdst. 4 de juridische status van en de zakelijke rechten op luchtvaartuigen behandeld, in hfdst. 5 de internationale wetgeving terzake van vluchtuitvoering (vergunningen), terwijl het volgende gedeelte de regelgeving rond luchtvaartterreinen doorschouwt. In hfdst. 7 komt de strafwetgeving aan bod, deel 8 gaat over het Verdrag van Warschau ca. en de hfdstt. 9, 10 en 11 betreffen conservatoire beslaglegging en openbare verkoop van luchtvaartuigen (9), hulp en berging van/door luchtvaartuigen (10) en luchtvaartassurantiën (11). Het laatste gedeelte van het boek gaat over de oorsprong van bilaterale verdragen, het Verdrag van Chicago, Bermuda 1946 en 1977 met als sluitstuk een geselecteerde bibliografie en zakenregister.
2 Van Bogaert is een internationaal befaamd volkenrechtsgeleerde: zie o.a. zijn omvangrijk *Volkenrecht* (1982). Ook dat standaardwerk getuigt van een scherp inzicht in de werkelijke problematiek van het internationale recht. Hoewel ik me realiseer dat publicaties als *An Introduction to Air Law*, I.H.Ph. Diederiks-Verschoor, Kluwer, Deventer, 1988, 3e druk, alsmede *De Overeenkomst van Internationaal Luchtvervoer* van de Belgische advocaat Frans Ponet, Kluwer, Antwerpen, 1985, althans voor een gedeelte, een ander uitgangspunt hebben, slaat mijns inziens bij vergelijking van het wetenschappelijk peil de balans duidelijk door in het voordeel van Van Bogaert. De problematiek bij de produktie van een inleidend werk behoeft nauwelijks betoog: waar dient de auteur zijn grenzen van de eigenlijke introductie van het thema te leggen zonder al te oppervlakkig te worden? Voorwaar een niet gemakkelijk vraagstuk! Van Bogaert heeft met zijn rechtstellige publicatie op uiterst gedegen wijze blijk gegeven meer met dat bijltje te hebben gehakt door zich niet onnodig te vermoeien met allerlei op zich belangwekkende details, maar zich daar te beperken waar dat wenselijk of noodzakelijk was. Daardoor blijft het beeld van zijn geschrift en de intentie van wat hij wil overbrengen erg zuiver.
3 Dat neemt niet weg dat er geen steekhoudende opmerkingen of suggesties zouden zijn te maken. Zo valt dadelijk op dat het referentiekader in litteratuur en de voetnoten stopt en stokt in begin tachtiger jaren. Aangaande een aantal klassieke onderwerpen is dat op zich niet zo spijtig. Maar als het geruchtmakende 'Asjes'-arrest van 30 april 1986 inzake de zgn. 'cutprice' tickets van het Franse reisbureau Nouvelles Frontières geen aandacht krijgt bij het onderwerp wel/geen rechtstreekse toepassing van de mededingingsartikelen 85 e.v. geeft dat te denken. Voorts kan een vraagteken worden geplaatst bij de niet vermelding van de dissertatie van I.H.Ph. Diederiks-Verschoor *Het Verdrag van Brussel van 1938 betreffende hulp en berging van/of door luchtvaartuigen op zee*, Utrecht 1943 in hfdst. 10 over 'l'Assistance et le

sauvetage des aéronefs' op pp. 402 e.v. Mijn oordeel inzake de niet gehele up-dating van Van Bogaert's belangrijke werk wordt verder ondersteund door de afwezigheid van vermelding van M.G. Folliot's artikel *Une étape vers un modèle européen de réglementation de la concurrence dans l'Aviation commerciale* met bijbehorende 19 december 1986-ECAC teksten, zoals opgenomen in RFDA, vol. 41, 2, 1987, pp. 89–128. Voorts kan melding worden gemaakt van het feit dat de door Van Bogaert op p. 401 aangehaalde uitspraak van de Haarlemse rb. betreffende conservatoire beslaglegging op een luchtvaartuig na het vonnis in kort geding d.d. 4 februari 1987 van de Rotterdamse president in de zaak Norlease Limited/Holland Aero Lines niet meer alleen staat: zie *Compendium Jurisprudentie Luchtrecht*, Tjeenk Willink, Zwolle, 1988, p. 315 e.v.
Verder zou een duidelijk overzicht van de gememoreerde jurisprudentie de ontsluiting van het boek vergroten.
4 De conclusie is dat Van Bogaert op geheel eigen wijze een klassiek handboek heeft geschreven, dat door zijn opmerkelijke stijl een toegevoegde waarde heeft voor de luchtvaart.

MR. DRS. F.A. VAN BAKELEN

Retentierecht door J.E. Fesevur, dissertatie Utrecht, Kluwer-Deventer, 1988, XII + 266 blz., Serie Recht en Praktijk nr. 49. Prijs: *f* 75,- (voor abonnees 20% korting)

1 Men houde voor ogen dat deze boekbespreking is geschreven voor het vervoersforum. Voor de nog komende boekbesprekingen van andere recensenten leze men de bekende juridische periodieken als WPNR, NJB (1988, p. 1035), Kwartaalbericht NBW.
Op 9 juni 1988 promoveerde auteur op de onderhavige publicatie aan de RUU. Zijn onderwerp 'Retentierecht' is voor de vervoersector van uitermate groot belang; in dat verband verwijs ik naar hfdst. IX *Contractuele bedingen inzake retentierecht* (pp. 219–234), waarin aan bod komt het retentierecht in de algemene voorwaarden van de wegvervoerders en de expediteurs. (Cf. art. 18 NAVC 1983 resp. art. 19 FENEX-Condities van 2 maart 1987 en Fesevurs nrs. 37 en 38 op p. 225 e.v. resp. p. 231 e.v.)
2 In tegenstelling tot het komends NBW-recht bevat het vigerend BW-recht van 1838 geen algemene regeling of omschrijving van het retentierecht. Vandaar de door Fesevur parallelle en systematisch goed volgehouden behandeling naar huidig en toekomstig recht, de niet vermelde subtitel van zijn pennevrucht. Zijdelings komt rechtsvergelijking aan de orde, niet het sterkste onderdeel van de dissertatie

NBW 3.10.4A.1 omschrijft het retentierecht als de bevoegdheid die in de bij de wet aangegeven gevallen aan een schuldeiser toekomt, om de nakoming van een verplichting tot afgifte van een zaak aan zijn schuldenaar op te schorten totdat de vordering wordt voldaan. Doel is een snelle en doeltreffende bewerkstelliging van die vordering. Daarbij heeft het retentierecht wel zakelijke werking, terwijl het geen zakelijk recht is. Maar om een zuiver beeld te krijgen van de plaats van het retentierecht in ons rechtsbestel diene men ook te rade te gaan bij de regeling van zgn. *opschortingsrechten* in NBW 6.1.6A., waarbij auteur op p. 16 van zijn dissertatie aantekent dat het retentierecht een species van het genus opschortingsrechten vormt, alsmede bij 8 NBW, de AVC 1983 en de Wet Overeenkomst Wegvervoer (WOW), welke beide laatste op 1 sept. 1983 van kracht zijn geworden, terwijl de AVC laatstelijk per 1 november 1984 werden gewijzigd met een enigszins uitgebreider retentierecht.

3 Helder en in een rustig betoog doorgrondt auteur de achtergronden van dit belangrijk rechtsinstituut met – zoals in een ac. prfs. betaamt – verwijzing naar (inter)nationale litteratuur en casuïstiek. Kort en krachtig – de dissertatie kent geen voetnoten! – wordt door opname van een cursief referentiekader in de tekst zelf de noodzakelijke diepgang geschapen die het boek zo aantrekkelijk maakt. Daarbij passeren de klassieken als de 'Asser'-serie, Pitlo/Brahn e.d. de revue en tevens een aantal vroegere dissertaties waaronder die van L.S.C. Heyning-Plate *Eigenrichting tot zekerheid*, Rotterdam 1969. Een rechtspraak- en zakenregister, een register op wetsartikelen en een lijst van enige veelvuldig verkort aangehaalde werken completeert dit belangwekkende academische geschrift.

4 Auteur wijdt een speciale paragraaf aan het retentierecht van de vervoerder ex art. 18 AVC 1983: nr. 37 op p. 225 e.v. Men vergelijke ook art. 53 lid 1 WOW en de corresponderende bepaling NBW 8.13.2.40 lid 1, waarin het woord 'retentierecht' is vervangen door 'recht om afgifte te weigeren' (Invoeringswet Boek 8, tweede gedeelte, WO 19 979, 1986–1987, nr. 2, p. 49). Dogmatisch behandelt Fesevur vragen als 'derdenbeding' (BW art. 1356, NBW 6.5.3.5), waarbij al gauw de '*exceptio non adimpleti contractus*' ten tonele verschijnt (zie Fesevur pp. 7 en 228), en de interessante vraagstelling of art. 53 lid 2 WOW resp. NBW 8.13.2.40 lid 2 in feite het retentierecht van de vervoerder beperkt ten opzichte van de regels in het algemene NBW-recht (NBW 6.1.6A.1) – zie Fesevur p. 229 met conclusie op p.231 –, welk thema terugkomt op p. 233 ten aanzien van het retentierecht krachtens art. 19 FENEX-Condities juncto NBW 8.2.3.9, het andere (nr. 38) belangrijke deelaspect voor lezers van TVW.

Bij nr. 36 (*Bedongen retentierecht*) p. 220 wil ik refereren aan de uitspraak HR 13 mei 1988, S & S 1988, 101: de verbeurdverklaring van een schip heeft niet tot gevolg dat *tevoren* daarop gevestigde beperkte zakelijke rechten

vervallen, waardoor een ouder retentierecht van de scheepswerf terzake van onbetaalde verrichte werkzaamheden na de verbeurdverklaring tevens jegens De Staat kan worden ingeroepen.

5 De algemene conclusie is dat Fesevur een actueel onderwerp (zie ook de periodiek *Weg en Wagen*, september 1988 met o.a. Hof Leeuwarden 22 juni 1988) met grote zorg heeft aangevat. Hoezeer het retentierecht in de transportwereld in beweging is en blijft moge o.a. blijken uit de door NOB in 1984 gehouden enquête: NJB 1985, p. 569.

Hoewel (voor juristen wellicht 'omdat'!) de theorie en de kaderstelling binnen het vermogensrecht (NBW 3, 5 en 6) en het komende vervoersrecht (NBW 8) de boventoon voeren, wint de publicatie aan kracht door de legitieme plaats die de casuïstiek erin is toebedeeld. Hierdoor, alsmede vanwege een overzichtelijk taalgebruik is het boek ook toegankelijk gemaakt voor niet-juristen.

MR. DRS. F.A. VAN BAKELEN

NEA-MEDEDELINGEN

ONDERWIJSACTIVITEITEN

In samenwerking met NOB Wegtransport, KNVTO en KVO ontwikkelt NEA een viertal cursussen voor het wegtransport. Het zijn de cursussen Logistiek, Marketing, Planning en Automatisering voor het Wegtransport. In de loop van 1989 zullen de cursussen 'Automatisering voor het Wegtransport' en 'Marketing voor het Wegtransport' operationeel zijn. De cursussen zijn mondeling en hebben een maximale duur van 8 dagen.
In januari 1989 vinden de examens plaats van de modulen I en III van de Cursus Vervoersmanagement. Het examen van moduul III (marketing, organisatie en techniek van het vervoer, bedrijfseconomie en informatica) wordt voor de eerste keer afgenomen. Eveneens in deze maand zal de kennis van de cursisten van de Vakopleidingen Openbaar Vervoer worden getoetst.
In november en december zijn in Tanzania de cursussen 'Management, Maintenance and Operations of Road Transport Fleets' en 'Transport Policy and Planning for Sub-Saharan Africa' gehouden.
De cursussen maken deel uit van de samenwerkingsovereenkomst tussen het Eastern and Southern African Management Institute (ESAMI) en NEA. Bij deze cursussen wordt gebruik gemaakt van het door NEA bij ESAMI ingerichte computercentrum.

ONDERZOEKACTIVITEITEN

Informatiesysteem voor de afdeling vervoer van het Gemeentelijk Vervoerbedrijf Rotterdam (RET)

Eind december 1988 wordt het functioneel ontwerp van een informatiesysteem ten behoeve van de afdeling vervoer van de RET afgerond, dat gedurende de afgelopen vijf jaar door NEA in samenwerking met de RET en het Gemeentelijk Rekencentrum Rotterdam is ontwikkeld. De hoofdfunctie van het informatiesysteem, VerVoerSysteem (VVS) genaamd, is het volledig weergeven van geleverde prestaties van het personeel en materieel. Daarnaast biedt het VVS de mogelijkheid gegevens vast te leggen die ondersteuning bieden bij de uitvoering en besturing van de bedrijfsprocessen.

De economische effecten van de Blankenburgtunnel

In opdracht van Rijkswaterstaat is onderzoek verricht naar de te verwachten economische baten van het aanleggen van een extra oeververbinding ten

westen van Rotterdam: de Blankenburgtunnel. In de studie is een schatting gemaakt van de kostenbesparingen voor het personen- en vrachtverkeer. Voorts is aandacht besteed aan het belang van de tunnel voor het functioneren van de regionale economie in het algemeen en aan de concurrentiepositie van de Rotterdamse haven in het bijzonder.

Rapportages conjunctuurenquêtes en korte termijnontwikkelingen in het goederenvervoer

In november/december zijn de navolgende rapporten uitgebracht:

- Resultaten van de conjunctuurenquête in de sector binnenlands goederenvervoer over de weg voor het 3e kwartaal 1988 en verwachtingen voor het 4e kwartaal 1988.
- Resultaten van de conjunctuurenquête in de sector internationaal goederenvervoer over de weg voor het 3e kwartaal 1988.
- Korte-termijnontwikkelingen in het binnenlands beroepsgoederenvervoer over de weg voor het 2e kwartaal 1988.
- Korte-termijnontwikkelingen in het grensoverschrijdend beroepsgoederenvervoer over de weg voor het 2e kwartaal 1988.

POSTACADEMISCH ONDERWIJS (PAO)

Voor het eerste kwartaal 1989 staan de volgende cursussen op het programma:

- 'Prioriteitstelling, probleem- en projectevaluatie in de verkeersplanning' op 10, 11 en 17 januari o.l.v. Drs. E. de Boer.
- 'Nieuwe wegen voor verblijfsgebieden: het komende werken aan naoorlogse wijken in relatie tot verkeersveiligheid' op 17, 18, 24 en 25 januari o.l.v. Ir. G.M.M. Alink en Ir. B. Bach SHO BNS.
- 'Kostenbeheersing in het wegvervoer; theorie en parktijk' op 1, 8 en 15 maart o.l.v. Prof. dr. G. Blauwens.
- 'Logistieke informatiesystemen en electronisch berichtenverkeer' op 15, 16 en 17 maart o.l.v. Prof. drs. C.J. Ruijgrok.

LIJST VAN TOT OP HEDEN VERSCHENEN THEMANUMMERS VAN HET TIJDSCHRIFT VOOR VERVOERSWETENSCHAP

Jaargang	Nummer	Onderwerp
1965	2	Problèmes de l'Infrastructure des Transports
1969	2	Honderd Jaren Akte van Mannheim
1972	extra nummer	Nationale Integrale Verkeers- en Vervoersstudie
1974	2	Zeevaart
	4	Goederenvervoer
1975	1	Tweede Nationale Luchthaven
	2	Zeevaart
	3	Verkeer, Vervoer en Ruimtelijke Ordening
	4	Rijn-Main-Donau-Verbinding
1976	1	Rijn-Schelde-Verbinding
	2	Vaarwegen
	3	Ruimtelijke Ordening
	4	Beleidsinformatiesystemen voor het Goederenvervoer
1977	1	Ontwikkelingen Verkeer en Vervoer in België
	2	World Conference on Transport Research
	3	Vervoersbesluitvorming en Vervoersanalyse; Capita Selecta
1978	1	Structuurschema Verkeer en Vervoer
	3	Transport en Energietoekomst
	4	Verkeer en Vervoer in Streek en Stad; Waarheen?
1979	1	Transport in Ontwikkelingslanden
	3	Scheepvaart
	4	Openbaar Personenvervoer

Jaargang	Nummer	Onderwerp
1980	1	Vervoer in Crisis
	2	Vervoer en Energie
	3	Haventarief Politiek
	4	Binnenvaart
1981	1	Luchtvaart
	3/4	Vervoers- en Haveneconomie: tussen Actie en Abstractie
1982	2	Transport via Buisleidingen
	3	Grensformaliteiten
	4	Logistics for Survival
1983	2	Goederenvervoerbeleid
	4	Personenvervoerbeleid
1984	2	Werken in het Vervoer
	4	Informatica en Transport
1985	2	De Economische Betekenis van het Vervoer
	3	De Ontwikkeling van de Vervoerswetenschappen
1986	2	Scheepvaart: Beleid in Beweging
	3	Gecombineerd Vervoer
	4	De Grote Operaties
1987	2	Zeehavenbeleid in België en Nederland
	3	Hoge Snelheidslijnen in Europa
	4	Ontwikkelingen in de Luchtvaart
1988	2	Strategic Informatics
	3	Interne Vervoermarkt 1992
	4	Transport problems in some developing countries