



Association mondiale de la Route

Plan stratégique 2008-2011

Strategic Plan 2008-2011

World Road Association

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1. FOREWORD

The World Road Association (PIARC) was founded in 1909 and, from that date, has taken the lead throughout the 20th and 21st centuries as a unique international forum in the roads and road transport sector. Through its activities, the Association has greatly contributed to the enhancement of a better global road community, which in turn has underpinned economic growth and social well being. This Strategic Plan aims to ensure that the Association's good work continues in our 2008-2011 cycle and beyond.

Road and transport administrations today are constantly facing new and complex challenges in a rapidly changing environment. In order to respond effectively to the emerging issues facing its members collectively, the World Road Association introduced its first Strategic Plan at the 1995 Montreal World Road Congress, and a revised Plan at each subsequent Congress. Each of these Plans was intended as a guide for the work of the Association, particularly the Technical Committees, for the following four year cycle.

For each Strategic Plan, **an extensive process of consultation** with First Delegates of member countries, Technical Committee members and others, identified and agreed upon priority issues of concern to World Road Association members, which would be appropriate for the Association to address and which were not already being addressed by other international organisations.

Each World Road Congress since the 1999 Congress in Kuala Lumpur has been organised within the framework of the Strategic Plan. At each Congress, forward looking Strategic Direction and Special Sessions on a wide range of topics addressed the key issues and challenges facing road administrations and road professionals in the coming years. The conclusions from these sessions were taken into account to enrich the outcomes of the consultation process and finalise the Strategic Plan.

The Association's Technical Committees are its key mechanism for delivering its technical program. Therefore, to facilitate planning, direction, monitoring and coordination of the work program of the Technical Committees, their terms of reference are clearly defined in the Strategic Plan and they are grouped into Strategic Themes, with each Strategic Theme coordinated by a member of the Association's Executive Committee.

For the 2008-2011 cycle, the Association's Road and Road Transport Goals will be delivered through **seventeen Technical Committees**, grouped in four Strategic Themes that focus on, respectively, sustainability of the road transport system, improving provision of services, safety of the road system and quality of road infrastructure.

For 2008-2011, the Association will establish **four Commissions** on Strategic Planning, Finance, Communication and International Relations, and Technological Exchanges and Development. The latter has a clear emphasis on issues concerning developing countries and countries in economic transition. In addition to the work of this Commission, all Technical Committees are required to give consideration to the needs of developing countries and countries in economic transition in their work programs.

Within the Strategic Plan, a section is included on the **roles, responsibilities and terms of reference** of each Commission. These are reflected in the issues, strategies and outcomes for the Association's ten Organisational Goals. The responsibility for each of these goals is assigned to or led by one of the Commissions, the Conference of National Committees or the General Secretariat.

Through this Plan, the World Road Association is continuing to direct its activities to the priority issues facing its members collectively, whilst retaining **international cooperation, knowledge exchange and technology transfer as key elements** in accordance with its Vision and Mission. By implementing this Strategic Plan, the Association will build upon the legacy of 100 years of progress and innovation, thereby effectively meeting the challenges of the future.

I am particularly grateful to all those who have contributed their opinions, together with all the members of the Strategic Planning Commission, as well as the Council and Executive Committee.

October 2008

Colin Jordan

**President of the World Road Association
(2005 - 2008)**

2. INTRODUCTION TO THE WORLD ROAD ASSOCIATION

2.1 THE WORLD ROAD ASSOCIATION AND ITS MEMBERSHIP

2.1.1. The World Road Association (PIARC) was established in 1909 as a non-profit association. Its broad aim has been to promote international cooperation on issues related to roads and road transport.

2.1.2. The World Road Association recognises the following classes of member:

- **National governments;**
- **Regional authorities** (representatives of the first administrative tier below the national government);
- **Collective members** (such as associations, international organisations, local authorities, companies and research institutes);
- **Individual members;**
- **Honorary members.**

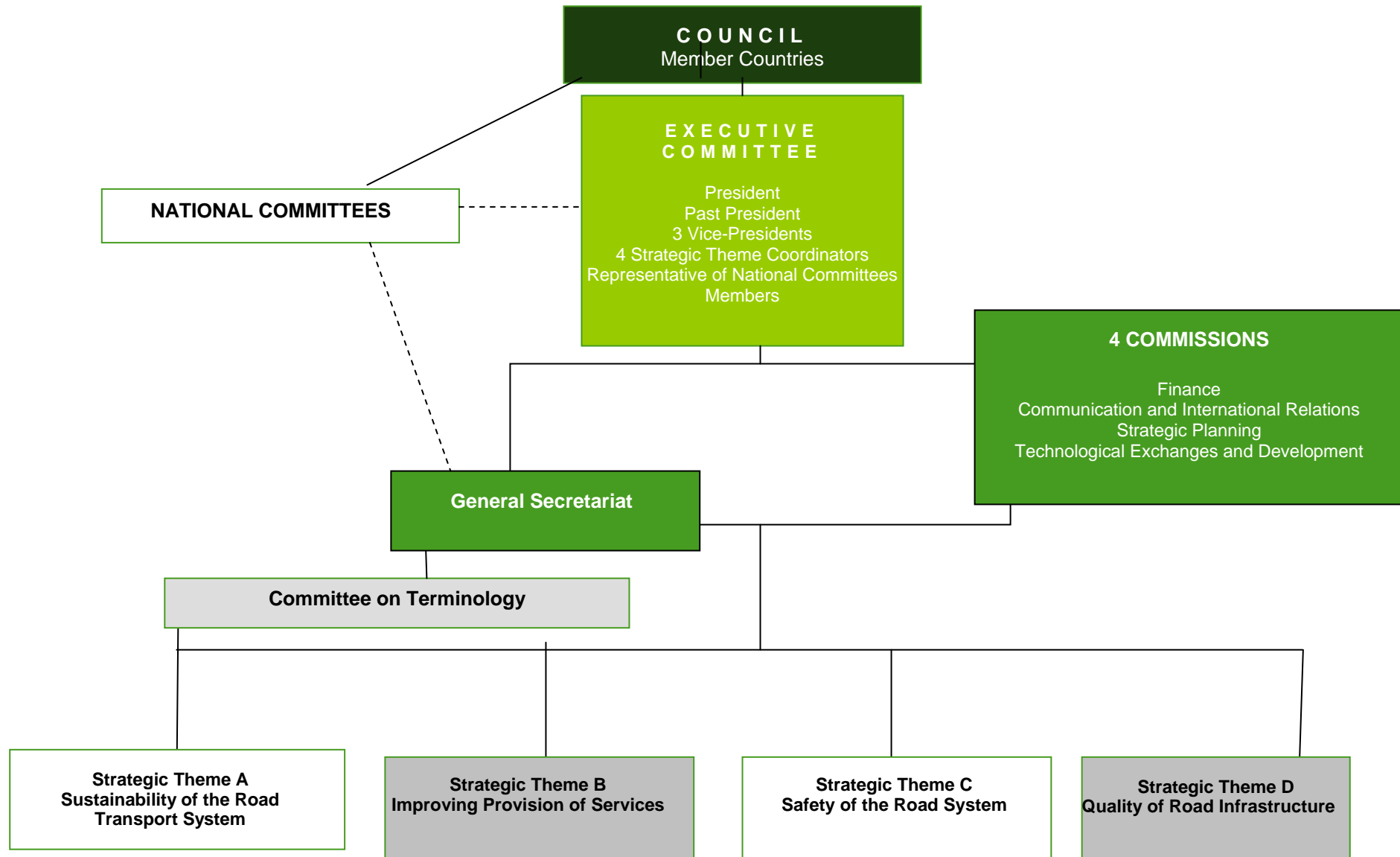
2.1.3. As at October 2008, PIARC has 117 national member governments from all over the world. Two thirds of these members are developing countries (DC) and countries in economic transition (CIT). There are over 2000 other members, about half of whom are individual members.

2.2 THE WORLD ROAD ASSOCIATION AND ITS RELATIONSHIP WITH OTHER ORGANISATIONS

2.2.1. The World Road Association has formal alliances with other international organisations in the form of Memorandums of Understanding (MoUs). The purpose of these MoUs is to facilitate and strengthen the collaboration between PIARC and other organisations in addressing issues of local, regional and international importance. PIARC has formal alliances with organisations such as:

- **Regional organisations** of road administrations (Road Engineering Association of Asia and Australasia - REAAA, Conference of European Directors of Roads - CEDR, Council of Iberian and South American Road Directors - DIRCAIBEA);
- **International organisations** (The World Bank); and,
- **Technical and scientific organisations** (International Transportation Engineers - ITE, International Tunnelling and Undergrounds Space Association - ITA, International Federation of Automotive Engineering Societies- FISITA, Transportation Research Board – TRB).

THE WORLD ROAD ASSOCIATION STRUCTURE



2.3 HOW THE WORLD ROAD ASSOCIATION IS GOVERNED AND MANAGED

- 2.3.1. The Council** has the ultimate responsibility for the governance of the World Road Association. It is composed of delegations from member countries, each led by a First Delegate. The Council elects the President, the Vice-Presidents, the Secretary General and the members of the Executive Committee. The Council meets once each year.
- 2.3.2. The Executive Committee** is responsible for the administration of the Association in accordance with policies approved by the Council. It is supported by the Commissions (Finance, Communication and International Relations, Strategic Planning, Technological Exchanges and Development) and the General Secretariat.
- 2.3.3. The General Secretariat** is located in Paris. It ensures the daily management of the Association in accordance with the resolutions and decisions of the Council and of the Executive Committee. It also provides a secretarial service for the Council, the Executive Committee and the Commissions and services to the Technical Committees. The General Secretariat is responsible for the Association's website, and for editing of the Routes/Roads magazine and various publications. It provides assistance in the planning and preparation of World Road Congresses and International Winter Road Congresses.
- 2.3.4. National Committees** in 38 member countries (as of January 2008) contribute to the dissemination of the Association's outputs, organise local activities such as meetings, conferences and seminars, and undertake some membership services and administration duties in their own countries.
- 2.3.5. The technical work of the World Road Association** has been divided into four Strategic Themes. Under these Strategic Themes are 17 Technical Committees that work on various subjects in the road and road transport field, as shown in the table below.

In addition, the Committee on Terminology works directly under the supervision of the General Secretariat.

- 2.3.6. As and when needed, working groups** are created to address focused issues in a given time frame. These working groups are placed under the umbrella of a Strategic Theme.

Strategic Themes and Technical Committees for 2008-2011

Strategic Theme A: Sustainability of the Road Transport System

| | |
|--------|---------------------------------------------------------------|
| TC A.1 | Preserving the Environment |
| TC A.2 | Financing, Managing and Contracting of Road System Investment |
| TC A.3 | Road System Economics and Social Development |
| TC A.4 | Rural Road Systems and Accessibility to Rural Areas |

Strategic Theme B: Improving Provision of Services

| | |
|--------|-----------------------------------------|
| TC B.1 | Good Governance of Road Administrations |
| TC B.2 | Road Network Operations |
| TC B.3 | Improved Mobility in Urban Areas |
| TC B.4 | Freight Transport and Inter Modality |
| TC B.5 | Winter Service |

Strategic Theme C: Safety of the Road System

| | |
|--------|----------------------------------------------|
| TC C.1 | Safer Road Infrastructure |
| TC C.2 | Safer Road Operations |
| TC C.3 | Managing Operational Risk in Road Operations |
| TC C.4 | Road Tunnel Operations |

Strategic Theme D: Quality of Road Infrastructure

| | |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TC D.1 | Management of Road Infrastructure Assets |
| TC D.2 | Road Pavements Sub-committees <i>D.2.a. Road surface characteristics</i> <i>D.2.b Flexible and semi-rigid pavements</i> <i>D.2.c Concrete pavements</i> |
| TC D.3 | Road Bridges |
| TC D.4 | Geotechnics and Unpaved Roads |

Committee on Terminology

2.4 THE WORLD ROAD ASSOCIATION'S ACTIVITIES

Framework for the World Road Association's activities

| | | |
|-------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scope of the World Road Association | → | Roads in the wider transport context |
| Goal of the World Road Association | → | To identify, develop and promulgate policy and practices that contribute to safer and more efficient management and use of road and road transport systems within an integrated sustainable transport context |
| Tool for this goal | → | World Road Association's Strategic Plan |
| Strategic Plan | → | Roadmap setting the structure, the method and content of the actions for the Association |
| Outputs | → | Publications, Seminars, Congresses, etc. |
| Outcomes | → | Better performing, safer and more sustainable road use and road transport in member countries |

2.4.1 The World Road Association's principal means for achieving its outputs are through the activities of its Technical Committees that undertake studies and prepare reports and papers on various topics related to roads and road transport issues. In addition, the Technical Committees arrange seminars in order to promote one of the World Road Association's main aims, i.e. technology transfer among member countries.

2.4.2 The World Road Association organises a World Road Congress every four years. The most recent ones were in Durban, South Africa in 2003 and in Paris, France in 2007. The next World Road Congress will be in Mexico in 2011.

It also organises once every four years, an International Winter Road Congress in the interval between World Road Congresses. The most recent ones were in Sapporo, Japan in 2002 and in Turin-Sestriere, Italy in 2006. The next International Winter Road Congress will be held in Quebec City, (Canada-Quebec), in February 2010.

2.4.3 The World Road Association produces a wide range of publications including a quarterly magazine *Routes/Roads*, reports of Technical Committees, Congress proceedings, dictionaries of technical terms and software products (especially HDM-4 for economic evaluations)

2.4.4 The World Road Association also undertakes special projects for the benefit of developing countries and countries with economy in transition.

3. THE WORLD ROAD ASSOCIATION'S VISION, MISSION, VALUES AND ROLE

3.1 VISION

The World Road Association is the world leader in the exchange of knowledge on roads and road transport policy and practices within an integrated sustainable transport and land use context.

3.2 MISSION

The World Road Association exists to serve all its members by:

- being a leading international forum for analysis and discussion of the full spectrum of transport issues relating to roads and road transport,
- identifying, developing and disseminating best practices and facilitating improved access to international information,
- fully considering within its activities the needs of developing countries and countries in transition,
- developing and promoting efficient tools for decision making on matters related to roads and road transport,
- providing advice on directions to the world's transportation system.

3.3 VALUES

The World Road Association's values are:

- to provide universal quality service to its members,
- to be open, objective and impartial,
- to promote the development of sustainable solutions,
- to recognise road transport in an integrated transport and land use context,
- to be customer driven,
- to respect the differing international road transport needs.

3.4 THE WORLD ROAD ASSOCIATION'S ROLE

- **The road system** plays a vital role within the transport context, in the performance of economies, in the social functioning of communities, sustainable mobility and in achieving effective land use and regional development.
- **As an international open forum** for information exchange, the World Road Association is in a unique position to address a full range of road transport and road infrastructure issues, to be pro-active in setting the agenda for addressing these issues and to support institutional integrity in road administrations. Participants in the World Road Association have found that they have much to learn from each other. They can develop more effective policies and technical approaches by learning from successes and failures elsewhere.
- **The benefit** of the World Road Association's activity will be reflected through having better performing, safer and more sustainable road use and road transport in member countries.

4. ROAD AND ROAD TRANSPORT GOALS

4.1 INTRODUCTION

The definition of the terms of reference for the activity of the Technical Committees in the current 2008-2011 period is the result of an extensive process of consultation. This process commenced in June 2006 with a workshop involving the Chairs and Secretaries of all Technical Committees and members of the Executive Committee. Following this, further consultations with First Delegates took place in order to identify the key priorities of member countries.

A draft document was derived from these consultations, circulated in 2007 then amended for presentation to the World Road Association Council at its September 2007 meeting. The main lines (identification of the Strategic Themes, structure of the Technical Committees, main issues to consider) were approved by the Council. The comments expressed by Council members and later the outcome of the sessions of the 23rd World Road Congress in Paris, contributed to the development of the current draft. The final version will result from the decision made by Council at its meeting in October 2008.

4.2 ORGANISATION FOR IMPLEMENTATION

4.2.1 One of the key roles of the Council and the Executive Committee is to consider the emerging issues that the World Road Association will address. In order to address these issues, the Association has defined clear strategies to be adopted and outputs to be achieved. The issues, strategies and outputs are summarised in the tables in Section 4.3 below.

4.2.2 One member of the Executive Committee will take responsibility as Coordinator for each of the four defined Strategic Themes. Each Strategic Theme Coordinator oversees the work of those Technical Committees whose issues are most closely related.

On behalf of the Executive Committee, the Strategic Theme Coordinators are responsible for coordinating and making sure that all the activities of each Technical Committee are implemented according to the strategies approved in the Strategic Plan.

4.2.3 Technical Committees are required, when they elaborate their work plans within the broad issues defined in their terms of reference detailed in Section 4.3 below, to select strategies and outputs specific to developing countries and countries in transition.

4.3 GOALS, ISSUES, STRATEGIES AND OUTCOMES FOR STRATEGIC THEMES AND TECHNICAL COMMITTEES

4.3.1 Strategic Theme A: Sustainability of the Road Transport System

Goal

Encourage the development of road transport policies and programmes that result in beneficial community outcomes for sustainable and safe mobility in economic, environmental and social terms, with special attention paid to energy issues and the mitigation of the impacts on climate from the road transport system.

Overview

Strategic Theme A brings together the priority issues for road administrations on the three dimensions (economic, environmental and social) of sustainability.

Climate change has become a major issue as the understanding of the effect of its impact has improved.

The contribution of road transport to global carbon emissions is significant and is a worldwide issue. It is important for road authorities to understand what it is possible for them to do, whether through the activities of construction and maintenance or influencing the use of the network.

Technical Committee A.1 will bring together member countries' strategies, plans and techniques for reducing their carbon footprint.

The increasing need for socio-economic development has continued the trend towards continually improving the provision of road infrastructure. This often leads to increasing pressure on budgets, in turn leading road authorities to look to more creative ways to finance and procure road improvements and maintenance. This also demands new skills from road authority clients in terms of managing and operating the contracts. These aspects are studied in **Technical Committee A.2**.

Road investment can generate substantial economic benefits and foster improved quality of life. Being able to document these benefits is important to assist national leaders in their allocation of limited resources. **Technical Committee A.3** will examine the strategy of road pricing and revisit how social impacts can be assessed.

Accessibility of road infrastructure for rural communities remains an important topic for poverty alleviation. **Technical Committee A.4** will focus on involvement of communities at all stages from planning to the provision of sustainable solutions to maintenance of rural roads.

Technical Committees:

- A.1 Preserving the Environment
- A.2 Financing, Managing and Contracting of Road System Investments
- A.3 Road System Economics and Social Development
- A.4 Rural Road Systems and Accessibility to Rural Areas

TC A.1 –Preserving the Environment

| Issue A.1.1 National policies and strategies for reducing the impacts of the road transport system on climate change and policies and strategies for the adaptation of transport systems to climate change | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Examine different countries' plans, policies and initiatives for</p> <ul style="list-style-type: none"> - mitigating against the impact of roads and road transport on the climate. - adapting road transport system to climate change. <p>Consider national policies for reduction in energy consumption when constructing, maintaining and operating the road transport system.</p> | <p>Report on policies and initiatives.</p> <p>Review case studies.</p> |
| Issue A.1.2 Monitoring of environmental impacts | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Review how the environmental impact of the road transport system is measured, what indicators are currently used in relation to the mitigation actions.</p> <p>Assess how the environmental impacts of road construction projects are measured, before, during and after completion. Assess how useful the results of these measurements are and what if anything, is done as a consequence.</p> | <p>Identify best practice.</p> <p>Report new developments with information in case studies.</p> |
| Issue A.1.3 Monitoring alternative solutions for fossil fuels for the road system | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Consider the impacts of new approaches, technologies and initiatives on energy consumption and gas emission in relation to the powering of the road transport system.</p> | <p>A review of trials and research.</p> |

TC A.2 – Financing, Managing and Contracting of Road System Investment

| Issue A.2.1 Review of public and private sector roles in sustainable road systems | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Review of the evolving roles of the public and private sectors in the provision of sustainable road systems and the levels of private sector participations in management, maintenance, operations, funding and financing | Report identifying the different combinations of public and private sector involvements in the provision of sustainable road systems, and the perceived advantages and disadvantages |
| Issue A.2.2 Explore funding and financing strategies for sustainable road systems | |
| <i>Strategies</i> | <i>Outputs</i> |
| Examine the different approaches employed for funding and financing strategies for sustainable road systems | Report on the approaches with case studies, where appropriate, adopted by countries at different development stages, illustrating their evolutions and achievements |
| Issue A.2.3 Investigation of new forms of procurement of private sector participations in sustainable road maintenance and operations | |
| <i>Strategies</i> | <i>Outputs</i> |
| Explore the different approaches to the procurement of services relating to maintenance and operations as well as design and construction of projects to provide levels of service consistent with user expectations and road hierarchies | Report with case studies illustrating the various forms of procuring private sector involvement and comparing the benefits and dis-benefits of novel against more traditional forms of maintenance and operations |

TC A.3 – Road System Economics and Social Development

| Issue A.3.1 Economic aspects of mobility pricing | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Investigate approaches to the economic evaluation of mobility pricings effects including managing demand, internalisation of external costs, modal shift and social acceptance. | A comparison of approaches and assessment of the maturity of knowledge of road pricing. |
| Issue A.3.2 New approaches to appraisal of social impacts | |
| <i>Strategies</i> | <i>Outputs</i> |
| Study the changes in approaches to methods of appraisal of social impacts resulting from road development and usage. | Study of new developments, identifying added benefits and/or wider scope. Evaluation of implemented approaches. |

TC A.4 – Rural Road Systems and Accessibility to Rural Areas

| Issue A.4.1 Accessibility and planning of the development of the rural roads system | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Investigate how the needs for accessibility and mobility in rural areas are being assessed and taken into consideration in planning the development of the rural roads system at national and /or regional levels. | Case studies, leading to a best practice guide. |
| Issue A.4.2 Sustainability of maintenance | |
| <i>Strategies</i> | <i>Outputs</i> |
| Review of planning, financing and management of sustainable maintenance methods and approaches. | Best practice for sustainable maintenance of rural roads. |
| Issue A.4.3 Involvement of local communities | |
| <i>Strategies</i> | <i>Outputs</i> |
| Consider how local communities should be involved in education, planning, financing, managing and implementation of development and maintenance schemes. | Case studies, leading to best practice guides. |

4.3.2 Strategic Theme B: Improving Provision of Services

Goal

Encourage the improvement of services provided to the community by improved operation of the road transport system, integration with other transport modes, good governance and a customer-oriented approach.

Overview

Strategic Theme B recognises the shift in attitude of road authorities towards becoming a service provider and considering the community as customers of the road transport network.

At the most fundamental level, institutional integrity is at the heart of serving the community. Continuation of work in this area shows the Association's lasting commitment to upholding and supporting the core value of integrity.

In addition to technical governance, another aspect of responsible governance is to ensure strategies are in place to develop and sustain the right skills and competencies in the workforce. These different issues are reflected in the terms of reference of **Technical Committee B.1**.

Technology is increasingly being relied upon to deliver efficient, targeted services to road users in terms of delivering information and operating the network to make best use of the available road space. These subjects are studied by **Technical Committee B.2**.

The increasing spread and density of urban areas mean that transport planners must improve their understanding of mobility choices. Integration of the different modes of transport, including non-motorized mobility and road transport in relation to land-use planning will be considered by **Technical Committee B.3**.

Efficient, safe and sustainable transport of freight is a further vital service provided to the economy and community. **Technical Committee B.4** will study issues of freight road corridors and those associated with the interfaces of road freight transport with other modes.

The community requires constant access to the road transport network at all times of year. The Winter Service **Technical Committee B.5** will investigate how to improve the delivery of winter maintenance and communication with road users to promote safe use of the network in adverse weather conditions.

Technical Committees:

- B.1 Good Governance of Road Administrations
- B.2 Road Network Operations
- B.3 Improved Mobility in Urban Areas
- B.4 Freight Transport and Inter-Modality
- B.5 Winter Service

TC B.1 – Good Governance of Road Administrations

| Issue B.1.1 Best practices for good governance | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Review recent changes in successful governance structures, practices and auditing such as the introduction of performance measurement.</p> <p>Examine different plans, policies and initiatives for successfully ensuring institutional integrity in the road sector.</p> | <p>Report identifying the key aspects and success factors that contribute to good governance.</p> <p>Best practice advisory guide for the road sector.</p> |
| Issue B.1.2 Improved services to customers | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Undertake a comparison of services targeted at customers and how customer's feedback is collected.</p> <p>Evaluate how a customer-oriented approach has improved services.</p> | <p>Benchmarking exercise comparing case studies and identifying common success factors.</p> |
| Issue B.1.3 Human resources for the future | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Review countries plans, policies and strategies regarding skill shortages and human resource challenges for the future.</p> <p>Review what is being done within the road sector to make the sector appealing and what skills would be beneficial to bring into this sector.</p> <p>Consider solutions to needs expressed by developing countries relating to deficiencies in training and education systems which are resulting in a lack of appropriately qualified road industry professionals.</p> | <p>Report on the skills gap within the road sector now and those skills that will be required in ten years' time.</p> <p>Identification of best approaches to improve the supply of skills.</p> <p>Training for those in the sector and those entering the sector.</p> |

TC B.2 – Road Network Operations

| Issue B.2.1 Management of congested areas | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Examine the understanding of and successful approaches to managing traffic flow on major urban and interurban roads in congested areas. | A study of the factors affecting the efficient use of road space on major urban and interurban roads, with proposals for how network operators can successfully manage congested areas. |
| Issue B.2.2 Appropriate use of ITS for an integrated transport system | |
| <i>Strategies</i> | <i>Outputs</i> |
| Investigate how ITS investments for road network operations are evaluated and identify policy related performance indicators in order to evaluate the success of ITS strategies of different countries. | Identification of success factors for ITS strategies and precautions to take against failure. Recommendations on how road authorities should assess and evaluate ITS schemes. Revision of the World Road Association ITS handbook to strengthen coverage of ITS in developing countries, ITS for road safety and the evaluation of ITS schemes. |
| Issue B.2.3 Management of road corridors | |
| <i>Strategies</i> | <i>Outputs</i> |
| Identify the factors affecting corridor usage, and how to influence users. [Cross-border issues : integration of services across country borders] | A study of the most important issues for operators of road corridors and advice for influencing users to make optimum travel choices. [Identification of issues, examples of best practice] |

TC B.3 – Improved Mobility in Urban Areas

| Issue B.3.1 Integration of the different modes of transport | |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Study strategies for balancing the share of urban transport modes to reduce congestion and improve mobility. | Case studies leading to guidance for road administrations. |
| Issue B.3.2 Land use planning and road transport | |
| <i>Strategies</i> | <i>Outputs</i> |
| Investigation of transport requirements and policies associated with planning of new developments in large cities. | Case studies, leading to guidance for road administrations, for countries in a range of stages of development. |
| Issue B.3.3 Non-motorized mobility | |
| <i>Strategies</i> | <i>Outputs</i> |
| Investigate how non-motorized mobility is being assessed and encouraged in planning transport schemes in urban areas. | Sample survey to arrive at realistic data for future transport planning. |

TC B.4-Freight Transport and Inter-Modality

| Issue B.4.1 Management of strategic freight corridors | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| On the basis of case studies (including cross-border issues) selected in both developed and developing countries, analyse the favourable or non-favourable conditions required for the seamless transit of freight. Identify the possible remedial measures. | Report presenting an analysis of these case studies, including recommendations for improving the management and operation of freight corridors. |
| Issue B.4.2 Interfaces of freight transport on roads with other modes | |
| <i>Strategies</i> | <i>Outputs</i> |
| From case studies involving different kinds of transport modes, review the aspects in the design and operation of interfaces which assist or are detrimental to the efficient and sustainable intermodal transport of freight. | Analysis of the case studies and recommendations for improving the efficiency of intermodal interfaces of freight transport. |
| Issue B.4.3 Urban Freight Management | |
| <i>Strategies</i> | <i>Outputs</i> |
| On the basis of case studies selected in both developed and developing countries, analyze the management of incoming freight and distribution of goods in congested urban areas. Focus on outcomes and evaluations of urban freight management schemes. | Report presenting an analysis of these case studies, including recommendations for how to implement sustainable and efficient freight management schemes in congested urban areas to reach the required effects. |

TC B.5 – Winter Service

| Issue B.5.1 Improve winter maintenance and operation information systems | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Investigate information systems, including two-way information with road users. Study of Winter Service Management Systems (WSMS) | Case studies of best practice in design and implementation of information/management systems. |
| Issue B.5.2 Provide sustainable winter maintenance | |
| <i>Strategies</i> | <i>Outputs</i> |
| Study of the full slate of social (safety), environmental and economic (cost-benefit) aspects required to achieve 'sustainability' in winter maintenance. Identify impacts of climate change (changes in winter severity) on winter maintenance and on road infrastructure. | Identification of what optimum sustainability means in terms of winter maintenance and strategies to achieve it. Report on the impact of climate change on winter maintenance and propose actions as preventative measures. |
| Issue B.5.3 Share knowledge via the Winter Road Congress | |
| <i>Strategies</i> | <i>Outputs</i> |
| Identify which priority issues and knowledge World Road Association members would find useful to share, and in what format they would like to receive it. | Definition of the technical programme of the XIIIth World Road Association International Winter Road Congress in 2010 and production of the proceedings. |
| Issue B.5.4 Communication with road users | |
| <i>Strategies</i> | <i>Outputs</i> |
| Identify innovative approaches to inform and influence road users about winter operations and safe winter driving. | Case studies illustrating best communication practice. |

4.3.3 Strategic Theme C: Safety of the Road System

Goal

Improve the safety and efficiency of the road system, including the movement of people and goods on the network, while effectively managing the risks associated with road transport operations and the natural environment.

Overview

Providing roads that are safe to use, and promoting their safe use, are priorities for all road administrations. Strategic Theme C will consider four aspects of road safety that support these aims.

Safe road design is the most traditional aspect of road safety, and one over which road administrations have most direct control. **Technical Committee C.1** will consider design improvements for urban roads and vulnerable road users, and incorporation of human factors into design standards for roads. The Committee will also consider approaches for improving safety for those working on roads.

As the engineering and design aspects of making roads safer to use has become better understood, the problem of further reducing death and injury needs to be addressed by considering how road users can be influenced to behave more safely. This is particularly relevant as traffic levels worldwide are increasing. **Technical Committee C.2** will consider how road authorities develop and implement their plans and priorities in this area, including the way different countries allocate cost to safety schemes and the different methods for institutional regulation of safety.

The possibility of more extreme weather events and increasing concerns over security are raising the profile of risk management practices for all transport operators. This work is reflected in the programme of **Technical Committee C.3**, which includes a study of social perception to risk – an aspect that is important in considering risk mitigation measures.

Technical Committee C.4 will build on the successful past work of the Association in the area of road tunnel operations to study how management and operation procedures can improve road tunnel safety and fire mitigation.

Technical Committees

- C.1 Safer Road Infrastructure
- C.2 Safer Road Operations
- C.3 Managing Operational Risk in Road Operations
- C.4 Road Tunnel Operations

TC C.1 – Safer Road Infrastructure

| Issue C.1.1 Incorporating human factors in road design for influencing driver behaviour | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Examine how key human factors that affect road user behaviour can be translated into engineering characteristics and road safety design policies.</p> <p>Undertake review of other guidance on human factors especially on vulnerable road users behaviour in road design standards.</p> | <p>Upgraded World Road Association Catalogue of Design Safety Problems and Countermeasures.</p> |
| Issue C.1.2 Safe design for roads in urban areas | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Consider recent changes to design guides for urban roads that promote improved road safety.</p> <p>Review safe road design in urban areas using segregated road space for the needs of vulnerable road users and public transport.</p> <p>Compare and evaluate design provision for low speed roads in residential areas</p> | <p>Upgraded World Road Association Catalogue of Design Safety Problems and Countermeasures.</p> |
| Issue C.1.3 Design improvements for vulnerable road users | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Assess design guidance on safe design for vulnerable users.</p> <p>Select design examples of good practice for the needs of vulnerable road users along those interurban roads to improve the situation in so called linear settlements.</p> | <p>Upgraded World Road Association Catalogue of Design Safety Problems and Countermeasures.</p> <p>Report on case studies.</p> |

Issue C.1.4
Improvements in safe working on roads

| <i>Strategies</i> | <i>Outputs</i> |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Assess approaches aimed at improving the safety of road workers. | Report on the studies and recommend best practice approaches. Upgraded World Road Association Road Safety Manual. |

Issue C.1.5
Upgrading and Updating of the PIARC Road Safety Manual

| <i>Strategies</i> | <i>Outputs</i> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Review and upgrade chapters 3 to 8 and the technical sheets of the Manual, incorporating the outputs from the previous cycle in order to create a comprehensive road safety knowledge base. | Upgraded PIARC Road Safety Manual chapter by chapter until 2010. |

TC C.2 – Safer Road Operations

| Issue C.2.1 Comparison of national road safety policies and plans | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Review national road safety policies and plans across a range of countries. | Report on key aspects of road safety policies and plans, identifying case studies. Upgraded World Road Association Road Safety Manual. |
| Issue C.2.2 Best practices in safety campaigns by public administrations | |
| <i>Strategies</i> | <i>Outputs</i> |
| Identify different approaches to road safety campaigns undertaken by public administrations. Review the different media that are used for promoting road safety. | Report on the different types of campaigns and the target audiences. Case studies of the different media for campaigns. Upgraded World Road Association Road Safety Manual. |
| Issue C.2.3 Cost effectiveness of safety measures and allocation of resources | |
| <i>Strategies</i> | <i>Outputs</i> |
| Study and compare the cost benefit analysis used by different road authorities for investment in safety schemes. | Report on the comparison of methods and case studies to illustrate choice of safety options. |
| Issue C.2.4 Institutional regulation aspects | |
| <i>Strategies</i> | <i>Outputs</i> |
| Consider the different approaches taken by road administrations based upon legislation and regulations in relation to the safe operation of roads. | Report on legislative and regulatory approaches aimed at achieving safer operation and preventing road side disturbances (control of access and of activities on road side, etc). |

TC C.3 – Managing Operational Risk in Road Operations

| Issue C.3.1 Introduce risk management techniques in the road sector | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Analyse the use of risk management techniques by road authorities and identify best practice. Identify case studies that exemplify the benefits of using risk management in different aspects of the road sector. | A guide to assist road authorities in the use of risk management. Case studies that demonstrate the value of using risk management. |
| Issue C.3.2 Risks Associated with Natural Disasters, Climate Change, Man Made Disasters and Security Threats | |
| <i>Strategies</i> | <i>Outputs</i> |
| Identify approaches being used to assess the risks associated with natural disasters, climate changes, man made disasters and security threats. Identify strategies that are being applied to reduce or mitigate the risks associated with these circumstances. | Share methodologies that have been used to evaluate the risks associated with natural disasters, climate changes, man made disasters and security threats. Case studies documenting strategies that have been effective in avoiding or mitigating these risks. |
| Issue C.3.3 Social acceptance of risks and their perception | |
| <i>Strategies</i> | <i>Outputs</i> |
| Identify and evaluate studies of the public's perception to risks in the road system and the factors that effect those social reactions. Study methods that are used to measure people's acceptance of risks. | Report on factors affecting social reaction to risks in road related activities. Produce guidelines that road authorities can use to measure the public's perception of risks. |

TC C.4 – Road Tunnel Operations

| Issue C.4.1 Improve tunnel operation and maintenance | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Finalize the study of responsibilities in tunnel safety management, including organisation of tasks and necessary skills.</p> <p>Develop procedures to improve tunnel operation based on training, exercises, and analysis of incidents, traffic and maintenance.</p> <p>Benchmark experience on tunnel safety inspection and maintenance organisation. Draw lessons on reliability, availability and maintainability of systems.</p> | <p>Recommendations on organisation and procedures for tunnel safety management, including role and skills of players.</p> <p>Guidelines on tunnel staff and emergency teams training, exercises and feedback from operation and incidents.</p> <p>Recommendations on management of maintenance and safety inspections, as well as operational aspects to be considered during the design and installation of technical systems.</p> |
| Issue C.4.2 Manage and improve tunnel safety | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Identify priorities and methods for improving safety in existing tunnels, including infrastructure, prevention and operation.</p> <p>Develop recommendations for risk analysis and investigate strategies for risk evaluation.</p> | <p>Report summarising the priority areas on the basis of cost-effectiveness and describing the practicalities of delivering improvements.</p> <p>Guidelines for risk analysis and state-of-the-art of risk acceptability.</p> |
| Issue C.4.3 Influence users' behaviour in tunnels | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Investigate harmonised means to influence users' behaviour in tunnels, including disabled persons.</p> | <p>Guidelines on drivers' education and real-time communication with tunnel users.</p> |

Issue C.4.4
Optimise tunnel ventilation and mitigate fires

| <i>Strategies</i> | <i>Outputs</i> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Update the air demands for ventilation in order to take into account recent reductions in vehicle emissions and the pollutants now considered critical, including specific situations in developing countries.</p> <p>Investigate fire test data and new regulations in order to finalise the update of design fires.</p> <p>Follow up new developments of fixed fire fighting systems and their application.</p> | <p>New data on vehicle pollutant emissions, including new critical pollutants and recommendations on ventilation capacity.</p> <p>Updated recommendations on design fires for road tunnel ventilation.</p> <p>Guidelines on applicability, cost-effectiveness and operation of fixed fire fighting systems.</p> |

Issue C.4.5
Evaluate, organise and communicate knowledge on tunnel operation and safety

| <i>Strategies</i> | <i>Outputs</i> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Identify needed information and scrutinize contents of existing World Road Association reports and other reports.</p> <p>Organise the document(s) produced by the Committee (e.g. tunnel manual for practitioners or guide for non-specialists).</p> | <p>Produce a general table of contents, links to relevant documents, and needs for future work.</p> <p>Develop a document presenting in a systematic way e.g. available knowledge for specialists or practical information for non-specialists.</p> |

4.3.4 Strategic Theme D: Quality of Road Infrastructure

Goal

Improve the quality of road infrastructure through the effective management of assets in accordance with user expectations and managers' requests.

Overview

While new technological, social and environmental developments are expanding the sphere of interest for road authorities, infrastructure and management of assets remains their core business. The need for more efficient use of funds requires constant improvement in techniques in terms of the design, management and maintenance of assets.

A better understanding of asset infrastructure and its condition is essential in order to plan maintenance and allocate limited resources across asset types, and this is reflected in the terms of reference of **Technical Committee D.1**. Cost effective data collection can be a challenge in itself, and choosing how to invest in data management is an important decision for road authorities.

Pavements, bridges and geotechnics are studied in terms of innovative approaches to durability of maintenance, use of innovative materials, assessment and maintenance methods that can reduce costs and minimise impact on the environment.

Technical Committee D.2 encompasses the breadth of pavement-related work, organized in three sub-committees: road surface characteristics, flexible and semi-rigid pavements, and concrete pavements. It focuses on innovative approaches to reduce construction time and cost, increase durability and promote recycling and reuse.

Technical Committee D.3 deals with assessment of bridge condition, innovative maintenance and rehabilitation techniques.

In the area of geotechnics and unpaved roads, **Technical Committee D.4** is placing emphasis on promoting the use of local materials, and innovations in construction and maintenance of unpaved roads for developing countries.

The impacts on design and management of these different asset classes due to anticipated changes to the world climate – such as increased rainfall and more prevalent extreme weather –are also reflected in the terms of reference of these Technical Committees.

- D.1 Management of Road Infrastructure Assets
- D.2 Road Pavements
 - Sub-committees
 - D.2.a. Road surface characteristics*
 - D.2.b Flexible and semi-rigid pavements*
 - D.2.c Concrete pavements*
- D.3 Road Bridges
- D.4 Geotechnics and Unpaved Roads

TC D.1 – Management of Road Infrastructure Assets

| Issue D.1.1 Benchmarking of asset management methods | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Identify best practice in asset management systems with key aspects for road authorities at different stages of development to consider when choosing a system.</p> <p>Review costs associated with asset systems and recommend where costs are best focused.</p> | <p>Illustrate through case studies the best practice for road authorities to adopt.</p> <p>Produce benchmark of costs for typical systems, relative to investment in assets.</p> |
| Issue D.1.2 Data collection for road infrastructure management | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Identify the options for cost effective data collection of the different elements of the road infrastructure.</p> <p>Identify the best practice approach for use of data in supporting a strategy for better road infrastructure management.</p> | <p>Report on the findings of the study for each major element of the road infrastructure.</p> <p>Using the experience of different countries produce a summary of how data is best used to develop an infrastructure management strategy.</p> |
| Issue D.1.3 Allocation of resources across asset classes | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Review the different approaches taken by countries in allocating resources based upon asset management.</p> <p>Consider the prioritisation process used in a range of countries for investing in maintaining the different assets (pavements, bridges, geotechnical structures, etc).</p> | <p>Produce evidence based upon the case studies to illustrate the different approaches and report on the key conclusions of the studies.</p> <p>Identify the benefits and dis-benefits of the prioritisation processes used to allocate resources, noting the differences across asset classes.</p> |

TC D.2 – Road Pavements –

TC D.2 is organised into three sub-committees

D.2.a Sub-committee on Road Surface characteristics

D.2.b Sub-committee on Flexible and Semi-Rigid Pavements

D.2.c Sub-committee on Concrete Pavements

These committees will all address the following issues:

| Issue D.2.1 Reducing construction time and cost | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| Identify the methods for reducing the time and costs of construction for different types of road pavements without affecting the performance objectives of the road structure. | Produce case studies to illustrate the methods of construction and the cost/ benefit analysis of the different cases. |
| Issue D.2.2 Improved maintenance methods | |
| <i>Strategies</i> | <i>Outputs</i> |
| Undertake an analysis of the performance of improved maintenance methods including surface maintenance and structural rehabilitation for different types of pavements. Consider the changes to maintenance strategies that have been adopted by road administrations and how these will change future maintenance of road pavements. | Report on the characteristics of the improvements and their performance over time. Produce a report outlining the changes and likely impacts. |
| Issue D.2.3 Road noise mitigation | |
| <i>Strategies</i> | <i>Outputs</i> |
| Identify the different legal requirements for reducing the impacts of road noise. Identify new techniques for reducing road noise and their effectiveness over time. | Report on the variety of legal requirements and the technical basis for the legislation. Provide a review of the new techniques and how these have helped reduce the impact of road noise. |

Issue D.2.4
Monitoring of innovations

| <i>Strategies</i> | <i>Outputs</i> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Review the recent changes in construction and maintenance of road pavements, identifying where innovations have been introduced towards improving durability and addressing environmental challenges.</p> <p>Undertake an assessment of the developments taking place in key road administrations for future innovations on road pavements.</p> | <p>Report on the key innovations that have been introduced in the construction and maintenance of road pavements and the success of the measures.</p> <p>A seminar to report on and share the knowledge about the future innovations that are being studied.</p> |

Issue D.2.5
Adaptation to climate change

| <i>Strategies</i> | <i>Outputs</i> |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Identify aspects of road pavements subject to the impacts of climate change.</p> <p>Study evolving adaptation strategies.</p> | <p>A review outlining potential impacts to road pavements.</p> <p>Identification of adaptation strategies that are currently being developed.</p> |

TC D.3 – Road Bridges

| Issue D.3.1 Inspections and non-destructive condition surveys | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Review the current information available on inspection regimes for assessing the conditions of structures.</p> <p>Analyse the latest techniques for non destructive testing for surveying the condition of structures.</p> | <p>Assessment of the most effective methods for structural inspections, identifying the key elements of the inspection process.</p> <p>Report on the most effective techniques for non destructive testing of different structural elements, taking account of costs and complexity.</p> |
| Issue D.3.2 Assessment of the condition of road bridges | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Consider the different approaches to assessing the conditions of structures taking into account safety, environmental restraints and accessibility.</p> <p>Review methodologies for assessing large scale structures including cable stayed and suspension bridges.</p> | <p>Report on the key aspects that influence the assessment of structures and how these have been handled by road authorities.</p> <p>Analysis of the assessment techniques for these structures with a review of the key problems.</p> |
| Issue D.3.3 Innovative maintenance techniques | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Undertake a review of new maintenance and rehabilitation techniques that have been used recently including costs and complexity.</p> | <p>Case studies with a summary of the benefits of the innovative approaches.</p> |

Issue D.3.4
Management of the bridge stock

| <i>Strategies</i> | <i>Outputs</i> |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Assess the different approaches used to prioritise management action of bridges for a range of road administrations. | Report on the management of bridges put in place by road authorities, including small and large scale structures, with comments on costs and skills required for management. |

Issue D.3.5
Adaptation to climate change

| <i>Strategies</i> | <i>Outputs</i> |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Identify aspects of road bridges subject to the impacts of climate change. Study evolving adaptation strategies. | A review outlining potential impacts to road bridges. Identification of adaptation strategies that are currently being developed. |

TC D.4 – Geotechnics and Unpaved Roads

| Issue D.4.1 Innovations regarding treatment and use of local materials | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Evaluate the application of the End Use Performance specifications.</p> <p>Analyse the type and the reliability of the performance targets which can be applied to earthwork performance evaluation.</p> <p>Describe the innovative approaches regarding the use of local materials.</p> <p>Promote common approaches used in member countries.</p> | <p>Advise on the innovative approaches which can be employed to promote the use of local materials in earthworks and unsealed roads by maximising their performance according to the envisaged use.</p> <p>Report summarising examples of good practice.</p> |
| Issue D.4.2 Innovations in construction and maintenance of unpaved roads for developing countries | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Review the innovation in construction of unpaved roads.</p> <p>Review the type and reliability of the monitoring and assessment approaches for unpaved roads e.g. in earthwork control and in the prioritisation of maintenance activities.</p> | <p>An international seminar and two workshops on the methods and approaches of existing evaluation techniques illustrated with examples.</p> |
| Issue D.4.3 Adaptation to climate change | |
| <i>Strategies</i> | <i>Outputs</i> |
| <p>Identify aspects of geotechnics and unpaved roads subject to the impacts of climate change.</p> <p>Study evolving adaptation strategies.</p> | <p>Report on current approaches.</p> |

4.3.5 Committee on Terminology

| Issue Updating the PIARC Terminology data base | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Strategies | Outputs |
| <p>Update the existing version of the terminology data base, including ongoing upgrading of the French and English versions of the various dictionaries.</p> <p>Increase the number of languages of translation of the various dictionaries in liaison with the member countries of the World Road Association.</p> | <p>Upgraded the Terminology section of the website of the World Road Association.</p> |

5. WORLD ROAD ASSOCIATION'S ORGANISATIONAL GOALS

5.1 INTRODUCTION

The World Road Association has established a set of organisational goals, which will assist in fulfilling its mission. These goals have been translated into issues and strategies that will lead to a number of expected outcomes, as shown in Section 5.3, and allow the goals to be achieved.

Roles, responsibilities and terms of reference have been developed for each Commission, and these are shown in Section 5.2.

Lead responsibility for each organisational goal has been assigned to one of the World Road Association's four Commissions, the Conference of National Committees, the General Secretariat or the Executive Committee. These assignments are shown under each goal statement in Section 5.3.

5.2 ROLES, RESPONSIBILITIES AND TERMS OF REFERENCE OF THE COMMISSIONS

5.2.1 Strategic Planning Commission

The Strategic Planning Commission is responsible for the World Road Association's formal strategic planning process, through which it shall oversee the development and implementation of the work program in accordance with its Vision, Mission and Values.

In order to maintain an effective strategic planning process, the Commission shall draw up a four-year plan of action to be implemented through its Strategic Themes, Technical Committees, other partners and particularly the Secretary General.

The plan of action shall include the following aspects:

- maintenance of the World Road Association's formal strategic planning process through the development of a strategic planning calendar for the four-year cycle, paying particular attention to issues of continuity between consecutive cycles;
- overseeing development of the work program for the four-year cycle from the Strategic Plan;
- monitoring implementation of the World Road Association's Strategic Plan and work program on a regular basis throughout the four years;
- overseeing revisions to the work program during the four-year cycle;
- revision of the World Road Association's Strategic Plan for the next four year cycle, in accordance with the calendar, and involving an extensive consultation process;
- review of the World Road Association's structure – Commissions, Strategic Themes and Technical Committees – needed to deliver the Strategic Plan;
- overseeing the planning and development of strategic direction and special sessions for the World Road Congress and the International Winter Road Congress;
- such other projects and tasks as the Executive Committee assigns to the Commission from time to time.

5.2.2. Finance Commission

The Finance Commission is responsible for developing and overseeing the implementation of a financial management strategy for the World Road Association. The Commission is also responsible for supervising the accounting system of the Association, the allocation of funds to its various activities and making recommendations on any such matters.

In order to establish appropriate accounting documents, namely: income statement, compared balance sheet, stock portfolios and business plan, the European Union standardised accounting plan will be followed by the General Secretariat.

In order to carry out its role and fulfill its responsibilities, the Commission shall draw up a four-year plan of action to be implemented by the Secretary General.

The plan of action shall include the following aspects:

- identification of the cost of the projects run by the Association as clearly as possible;
- development of an active policy of revenues and expenses in order to meet the operational requirements of the Association and to complete the projects it develops, including:
 - Proposals on membership fees,
 - Rules on financial assistance for the Committees and Working Groups,
 - Rules on financial assistance for official representations;
- safeguarding the rules concerning the Finance Commission, in particular the role of the internal auditors;
- providing guidance for prudent management of the funds of the Association with care;
- preparation of a rolling four-year financial plan;
- receiving World Road Congress and International Winter Road Congress budget proposals and proposals for Congress fees from the relevant local organising committee for consideration and, after acceptance, recommendation to the Executive Committee for submission to Council, including proposals for the allocation of net Congress receipts between the local Organising Committee and the World Road Association;
- such other projects and tasks as the Executive Committee assigns to the Commission from time to time.

5.2.3. **Communication and International Relations Commission**

The responsibilities of the **Communication and International Relations Commission** are to develop a four year action plan to facilitate, promote and strengthen dialogue between the Association, National Committees, current and potential members, and international bodies.

The Commission shall build on the work of the previous Commissions on Communication and on International Relations. It is responsible for the development and implementation of a marketing and communications strategy for the Association which will outline the direction for the Commission's activities in these areas.

The Commission shall implement a plan of action that covers the marketing, membership and communication elements of the following:

- the World Road Association's role as an international forum for the exchange of information and technologies;
- the identification for potential expansion of membership among countries;
- the monitoring of the World Road Association's relationship with international and regional bodies, including the implementation of MoUs where necessary;
- implementation of decisions and resolutions relating to communications taken by the management of the Association;
- results from the works of the Technical Committees and other competent bodies;
- overseeing the revision of current membership benefits resulting in enhanced benefits for members;
- proposals intended to raise the profile of the Association or its partners through increased marketing activities;
- increased participation by members of the Association;
- organisation of the PIARC prizes competition for the 2011 World Road Congress;
- undertake other projects and tasks as the Executive Committee assigns to the Commission from time to time.

5.2.4. Technological Exchanges and Development Commission

The Technological Exchanges and Development Commission is responsible for the development of the technological exchanges and development policy and strategy for the World Road Association in accordance with its Vision, Mission and Values. The Commission shall draw up a related four-year plan of action to be implemented through the various partners and particularly the General Secretariat.

The plan of action shall be coordinated with that of the Commission on Communication and International Relations to avoid overlap and shall cover the technological exchanges and development elements, specifically towards developing and transitional countries.

The Commission shall:

- oversee the World Road Association policy on knowledge transfer;
- develop and undertake dialogue with international bodies to encourage collaboration in the area of knowledge transfer;
- oversee the management of the World Road Association Seminar programs. The Commission will provide guidance on the nature, characteristics and structure of each seminar, and draw conclusions;
- be responsible for the use of the World Road Association Special Fund by representatives from developing countries;
- maintain and update the directory of professional training organisations on the World Road Association's website where necessary;
- other projects and tasks as the Executive Committee assigns to the Commission from time to time.

5.3 ISSUES, STRATEGIES AND OUTCOMES FOR THE WORLD ROAD ASSOCIATION'S ORGANISATIONAL GOALS

Goal 1: Management and Operation of the World Road Association

To continuously improve the management and operation of The World Road Association in order to provide members with a service that represents good value for money.

(Assigned to the Executive Committee and the General Secretariat)

| Issue 1.1 Improve the effectiveness of the Council and the Executive Committee | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Provide Council with better information on which to base policy decisions</p> <p>Arrange more Executive Committee meetings in developing and transitional countries</p> | <p>More actively participated Council meetings</p> <p>Clear decision making and more rapid management response</p> |
| Issue 1.2 Improve communications between the Technical Committees and the Executive Committee and the Council | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Allocate responsibility for liaison and strategic initiatives to designated members of the Executive Committee</p> <p>Provide more direction to Technical Committees on the priorities for study by meetings of the Strategic Theme Coordinators with the Chairs and Secretaries of the Technical Committees and by using telematics and internet communications</p> | <p>Improved focus on subjects of interest to decision makers</p> <p>Better management of the outputs of the Technical Committees and feedback to the Executive Committee of expert views</p> |
| Issue 1.3 Improve the effectiveness of Technical Committees | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Adopt a project oriented approach for the definition of the outputs and the management of Technical Committees</p> | <p>Outputs better fit needs</p> |

Goal 2: Cooperation with International and Regional Organisations

To promote cooperation with regional organisations of road authorities and with other international organisations with related goals.

(Assigned to the Executive Committee, the Communication and International Relations Commission and the General Secretariat)

| Issue 2.1 | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Improve cooperation with international and regional organisations with related goals | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Invite representatives of other professional organisations to attend Council meetings as observers</p> <p>Develop agreements for cooperation and collaboration with relevant international and regional organisations</p> <p>Monitor relationship with international and regional organisations, including implementation of MoUs</p> <p>Involve other organisations in Technical Committees</p> <p>Seek cooperation in special purpose conferences – joint sessions</p> | <p>Improved studies of issues that cut across professional boundaries</p> <p>More effective use of human and knowledge resources leading to more and improved products with wider appeal</p> <p>Reduction in duplication of efforts</p> <p>Improved participation by regional associations and improved information exchange</p> |

Goal 3: Personal Contact Networks

To develop and encourage professionally worthwhile and effective personal contact networks.
(Assigned to the General Secretariat)

| Issue 3.1 Improve personal contact networks for road directors and other senior officers | |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outcomes</i> |
| Foster direct links between the General Secretariat and regional organisations of road authorities. | Improved coordination between the World Road Association and activities at regional level Improved understanding of the World Road Association actions |

Goal 4: World Congresses Management

To host major Congresses that are valuable events for setting direction for the future, provide knowledge exchange and networking opportunities among members of the road transport community, and develop a range of options that are viable from the World Road Association's point of view.

(Assigned to the Executive Committee and the General Secretariat)

| Issue 4.1 Improve the effectiveness of Congresses for information exchange | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Encourage sessions which are looking towards the future</p> <p>Encourage contributions from the different stakeholders including the different categories of users, and from other international organisations.</p> | <p>More effective Congresses – oriented towards the future activities of the World Road Association</p> <p>Stimulate growth in membership</p> <p>Better mutual recognition</p> |
| Issue 4.2 Enlarge geographical distribution of conference activity | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Identify opportunities to cooperate with other organisations to participate in regional and technical conferences</p> | <p>More interaction between different regions</p> <p>Activity in more regions</p> |

Goal 5: Activity and Visibility at the National Level

To build and strengthen the activity and visibility of the Association at the national level.

(Led by the Conference of National Committees and supported by the Communication and International Relations Commission)

| Issue 5.1 | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Improve the sharing of information to a wider audience | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Promote the activity of the Association by actions led at national level by National Committees or correspondent organisations when they exist and promote the establishment of a national committee in other cases.</p> <p>Strengthen the relationship between existing National Committees by sharing information on actions at national level and by jointly organised events.</p> | <p>More professionals within member countries linked to the World Road Association's activities worldwide.</p> <p>More efficient networking.</p> |

Goal 6: Knowledge Transfer

To develop practical means for efficient and effective knowledge transfer among countries.

(Assigned to the Technological Exchanges and Development Commission)

| Issue 6.1 | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Oversee the World Road Association's policy on knowledge transfer | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Develop a policy on how knowledge transfer can be best achieved between the World Road Association member countries.</p> <p>Explain and promote this policy to First Delegates, National Committees and Technical Committees.</p> | <p>A new approach to transferring knowledge between member countries.</p> <p>Support from member countries in adopting new approach to knowledge transfer.</p> |
| Issue 6.2 | |
| Develop and undertake dialogue with international bodies on knowledge transfer | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Identify international entities/bodies with which the World Road Association wants to develop a dialogue.</p> <p>Undertake discussions with international bodies to establish opportunities for joint working or support.</p> | <p>Improved contacts with other international groups.</p> <p>Joint projects with a wider range of international groups.</p> |
| Issue 6.3 | |
| Responsible and effective use of the World Road Association Special Fund | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Review and update policies and application procedures for the use of the Special Fund and disseminate the funds to eligible countries.</p> <p>Promote the use of the Special Fund in combination with actions undertaken by the Association for the benefit of developing countries.</p> | <p>Increased participation and presence of road professionals from developing countries in the World Road Association activities.</p> <p>A more efficient use of the financial resources of the Association.</p> |

Issue 6.4

Management of the World Road Association seminar program

| <i>Strategies</i> | <i>Outcomes</i> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <p>Monitor use of guidelines on seminar characteristics, expected outcomes, relevance to developing countries and on economic assistance for organising seminars</p> <p>Prepare a seminar program for 2008-2011 in consultation with the Technical Committees</p> <p>Work with the General Secretariat to assist Technical Committees and National and Regional Committees, etc. with the organisation of seminars</p> | <p>At least two seminars per Technical Committee in developing and transition countries during 2008-2011</p> |

Goal 7: Communications with Members and Outside Groups

To improve participation of member governments, and to increase the number of members of the road community benefiting, whether through National Committees or by direct participation, in the World Road Association Technical Committees.

(Led by the Communication and International Relations Commission)

| Issue 7.1 Improve communications with members and outside groups | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Develop a clear identity for the Association and raise its profile</p> <p>Develop and implement a marketing strategy to target the World Road Association products</p> <p>Examine methods to attract and retain new members including identifying enhanced membership benefits</p> <p>Oversee the World Road Association Prizes Competition 2011</p> | <p>Interest in the World Road Association, stimulate and encourage membership, especially among young professionals</p> <p>Worldwide road community better informed about international experience on road and road transport issues and best practice</p> <p>Increased membership rates and increased levels of retention through improved membership satisfaction</p> <p>Wider, targeted audience for the World Road Association publications and products</p> |

Goal 8: Publications and Products

To produce and disseminate authoritative, impartial and interesting publications and products that address current road and road transport issues.

(Assigned to the Communication and International Relations Commission)

| Issue 8.1 Oversee the World Road Association publications and products | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | <i>Outcomes</i> |
| Support Routes/Roads (define target groups, editorial policy, layout) Oversee the quality of the World Road Association publications and the presentation of its products Continually improve the website as a tool for the exchange of knowledge | Appreciation of the World Road Association publications and products with increased readership Increased accessibility of the World Road Association publications and products |

Goal 9: Financial Management

To put transparent and rigorous financial management of the Association in the service of its purpose and to optimise its resources in order to meet future challenges.

(Assigned to the Finance Commission)

| Issue 9.1 | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Put the financial management of the Association in the service of its purpose | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Review the costs and financing of the projects of the Association to help control their execution</p> <p>Develop a pro-active policy of revenues and expenses in order to meet the operational requirements of the Association and to complete the projects it develops</p> | <p>Members can find out more about what is done with their membership fees.</p> <p>Ensure complete coverage of the running costs and of the promotion of the projects</p> |
| Issue 9.2 | |
| Optimise investment performance for the funds managed by the Association | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Provide guidance for prudent management of the funds of the Association and oversee the management</p> <p>Provide guidance for drawing the annual budget and a four-year financial plan for the strategic plan period.</p> | <p>Safeguard the assets of the Association</p> <p>Optimise the management of the assets</p> |
| Issue 9.3 | |
| Ensure transparency of financial management | |
| <i>Strategies</i> | <i>Outcomes</i> |
| <p>Ensure balanced geographical representation of the Finance Commission (despite the travel difficulties)</p> <p>Safeguard fully the rules concerning the Finance Commission, in particular the role of the management auditors</p> | <p>Involve all the regions of the world in the financial management of the Association</p> <p>Maintain an independent monitoring of the General Secretariat via management auditors</p> |

Goal 10: Strategic Planning

To identify, develop and promulgate policy and practices that contribute to safer and more effective management and use of road and road transport systems within an integrated sustainable transport context.

(Assigned to the Strategic Planning Commission)

| Issue Meet the needs of members for improved road and road transport policy and practices through a systematically developed and monitored technical and supporting work program | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Strategies</i> | | <i>Outcomes</i> |
| 10.1 | Maintain a formal strategic planning process through the development of a strategic planning calendar for the four-year cycle. | Timely delivery of the Strategic Plan and the work program. |
| 10.2 | Oversee development of a four-year work program from the Strategic Plan. | A well directed and transparent work program that meets members' needs. |
| 10.3 | Monitor the implementation of the work program on a regular basis and coordinate the work across the Technical Committees. | A work program that remains focused and on target to achieve its goals. |
| 10.4 | Oversee revisions to the work program. | A flexible work program that is responsive to members' changing needs and emerging issues. |
| 10.5 | Revise the Strategic Plan for the next four year cycle through an extensive consultation process. | A Strategic Plan to direct the work program that is up to date, relevant and addresses priority issues for members. |
| 10.6 | In conjunction with the four-yearly revision of the Strategic Plan, review the World Road Association structure – Commissions, Strategic Themes and Technical Committees. | A structure best suited to efficient and effective delivery of the work program and achievement of the World Road Association's strategic goals. |
| 10.7 | Oversee the planning and direction of the Strategic Direction and Special Sessions at the World Road Congress and the International Winter Road Congress. | Shared understanding of emerging and priority issues both for road administrations and to be addressed in the World Road Association's forward work program. |

APPENDICES

1. MEMBER GOVERNMENTS - 117 AS AT OCTOBER 2008

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ALGERIA - ANDORRA - ANGOLA - ARGENTINA - AUSTRALIA - AUSTRIA - AZERBAIJAN |
| BANGLADESH - BELGIUM - BENIN - BHUTAN - BOLIVIA - BRAZIL - BULGARIA - BURKINA FASO - BURUNDI |
| CAMBODIA - CAMEROON - CANADA - CANADA-QUÉBEC - CAPE VERDE - CHAD - CHILE CHINA (PEOP. REP.) COLOMBIA - CONGO (REP.) - CONGO (DEM. REP.) - COSTA RICA CÔTE D'IVOIRE - CROATIA - CUBA - CZECH REPUBLIC |
| DENMARK - DOMINICAN REPUBLIC |
| EGYPT - ECUADOR - ESTONIA |
| FINLAND - FRANCE |
| GABON - GERMANY - GHANA - GREECE - GUATEMALA - GUINEA |
| HONDURAS - HUNGARY |
| ICELAND - INDIA - INDONESIA - IRAN - IRELAND - ISRAEL - ITALY |
| JAPAN |
| KENYA - KOREA (REP.) - KUWAIT |
| LATVIA - LITHUANIA - LUXEMBOURG |
| MADAGASCAR - MALAYSIA - MALI - MAURITANIA - MAURITIUS - MEXICO - MOLDAVIA - MONACO MONGOLIA - MOROCCO |
| NAMIBIA - NEPAL - NETHERLANDS - NEW ZEALAND - NICARAGUA - NIGER - NORWAY |
| PAKISTAN - PANAMA - PAPUA NEW GUINEA - PARAGUAY - PERU - PHILIPPINES - POLAND - PORTUGAL |
| ROMANIA - RUSSIA |
| SALVADOR - SAUDI ARABIA - SENEGAL - SINGAPORE - SLOVAK REPUBLIC - SLOVENIA - SOUTH AFRICA SPAIN - SRI LANKA - SWAZILAND - SWEDEN - SWITZERLAND - SYRIA |
| TANZANIA - THAILAND - TOGO - TONGA - TUNISIA - TURKEY |
| UGANDA - UKRAINE - UNITED KINGDOM - URUGUAY - USA - UZBEKISTAN |
| VENEZUELA - VIETNAM |
| YEMEN |
| ZIMBABWE |

2. NATIONAL COMMITTEES (38 COUNTRIES) AS AT OCTOBER 2008

| |
|--------------------------------------------------------------------------|
| ALGERIA – ARGENTINA – AUSTRALIA (*) - AUSTRIA |
| BELGIUM – BENIN – BURKINA FASO |
| CAMEROON – CANADA – CANADA-QUÉBEC – CONGO (REP.) – CZECH REPUBLIC |
| DENMARK (**) |
| FINLAND (**) - FRANCE |
| GERMANY - GREECE |
| HUNGARY |
| ICELAND (**) – INDIA - ITALY |
| JAPAN |
| KOREA (REP.) |
| MALI – MADAGASCAR – MEXICO - MOROCCO |
| NORWAY (**) – NEW ZEALAND (*) |
| PORTUGAL |
| ROMANIA |
| SENEGAL – SLOVAK REPUBLIC – SLOVENIA – SPAIN – SWEDEN (**) - SWITZERLAND |
| UNITED KINGDOM |

(*) AUSTROADS

(**) NORDIC ROAD ASSOCIATION

3. PAST WORLD ROAD CONGRESSES AND INTERNATIONAL WINTER ROAD CONGRESSES

3.1 World Road Congresses

| | |
|-------------------------------|-----------------------------------|
| 1908, Paris (France) | 1910, Brussels (Belgium) |
| 1913, London (United Kingdom) | 1923, Seville (Spain) |
| 1926, Milan (Italy) | 1930, Washington (USA) |
| 1934, Munich (Germany) | 1938, The Hague (The Netherlands) |
| 1951, Lisbon (Portugal) | 1955, Istanbul (Turkey) |
| 1959, Rio de Janeiro (Brazil) | 1964, Rome (Italy) |
| 1967, Tokyo (Japan) | 1971, Prague (Czechoslovakia) |
| 1975, Mexico-city (Mexico) | 1979, Vienna (Austria) |
| 1983, Sydney (Australia) | 1987, Brussels (Belgium) |
| 1991, Marrakech (Morocco) | 1995, Montreal (Canada-Québec) |
| 1999, Kuala Lumpur (Malaysia) | 2003, Durban (South Africa) |
| 2007, Paris (France) | |

3.2 International Winter Road Congresses

| | |
|-------------------------------|-------------------------------|
| 1969, Berchtesgaden (Germany) | 1971, Valloire (France) |
| 1973, Jyväskylä (Finland) | 1975, Salzburg (Austria) |
| 1978, Dobbiaco (Italy) | 1982, Davos (Switzerland) |
| 1986 Tampere (Finland) | 1990, Tromsø (Norway) |
| 1994, Seefeld (Austria) | 1998, Luleå (Sweden) |
| 2002, Sapporo (Japan) | 2006, Turin-Sestriere (Italy) |