Chapter 1
Prospects for Sustainable Railways
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Background

This book aims to provide a comprehensive overview of the key issues and challenges of developing railways as a sustainable transport (both passenger and freight) mode in modern societies. The importance of railways is put in the wider context of comprehensive sustainability, which encompasses sustainable development, social and economic equity and community livability (Greene and Wegener 1997, Preston and O’Connor 2008). Sustainable development emphasizes the interface between the environment and the economy. In particular, railways in modern societies have the potentials of minimizing the negative environmental impacts of transport and supporting continual growth and development of the economy (Banister and Hall 1993, Bauer et al. 2009, Bristow et al. 2008, Eusebio and Rindom 1994, Givoni et al. 2009, Kim and van Wee 2009, Lee et al. 2009). Social and economic equity emphasizes the interface between the economy and the society. Railways, as a mass transport mode, can provide affordable mobility to people who do not own or use cars, and ensure fair accessibility to various opportunities across different social strata (Litman 2006, Loo et al. 2010, Lucas 2004, State of Victoria 2008). Finally, community livability addresses the interactions between the environment and the society. Railways can make local communities more livable with less noise and air pollution, traffic injuries and congestion (Cervero 1995). Together with the higher usage of active transport modes like cycling and walking, people can enjoy better health and quality of life (Clifton et al. 2007, Steg and Gifford 2005).

Ever since the nineteenth century, the profound impacts of railways on the overall economic development of different countries and the spatial patterns of urban and economic development have received much attention. Historically, railway expansion played a catalytic role in spearheading development at a national or even continental scale (Coatsworth 1979, Hurd 1975, Owen 1964, Rostow 1960). In the seminal work of Rostow (1960) on the Stages of Growth, economies developed by undergoing various development stages from the ‘precondition for take-off’, ‘take-off’, ‘drive to maturity’ and ‘age of high mass-consumption’. In particular, Rostow (1960: 55) remarked that ‘the introduction of the railroad has been historically the most powerful single initiator of take-offs’. This approach of sequential (irreversible), linear and uniform path is described as the modernization paradigm. In transportation, Taaffe, Morril and Gould (1963) theorized the sequential transport development model into six phases. Railway development characterized the second phase of ‘penetration lines and port concentration’, which was described as ‘the most important single phase in the transportation history of an underdeveloped country’ (Ibid.: 506). Similarly, Owen’s (1964, 1987) ‘Stages of Mobility’ considers transport mechanization, particularly railroads, to be instrumental in enabling industrialization.

Nonetheless, Fogel’s social savings arguments (1979) in the USA sparked much academic debate on the role of railways from an economic history perspective. Railways’
contribution to economic development was found to be much smaller in the counterfactual scenario, that is, had railways not been built in the USA (David 1969, Fogel 1979, O’Brien 1977, Fishlow 1965, White 1976). Similar debates about the relative economic contribution of river navigation and canals versus railways were also found in Britain (Hawke 1970) and Italy (Fenoaltea 1972). While some social saving studies casted doubts on the significance of railways in economic development, railways have withstood stringent economic analyses in countries like Argentina (Summerhill 2005b), Mexico (Coatsworth 1979) and Spain (Herranz-Loncán 2006). Economically, railway expansion was found to be critical to the market unification of food grains in India (Hurd 1975) and Russia (Metzer 1974). Moreover, railways were considered to be important in integrating Northeast America with the Midwest to form the ‘Manufacturing Belt’ (Chandler 1965, Lakshmanan and Anderson 2007).

The focus of the above research was primarily put on freight transport. Yet, the profound impacts of railway expansion on other aspects of the society have also been widely recognized. As early as the 1950s, Abramovitz (1955: 174) stated that ‘it is not too much to say that the transition from the capital markets of the early nineteenth century to the complex, highly specialized and organized capital markets on which twentieth century industry depends was largely based on the activity engendered by railway finance’. In relation, railway investments increased productivity significantly in Brazil (Summerhill 2005a). Moreover, railways also played key non-economic roles, such as political and military roles (Wolfe 1963, Leung 1980). On the one hand, railways were instrumental in the political and economic colonialization in Africa and Latin America, particularly for raw material exports (Mabogunje 1989, Pirie 1982). On the other hand, railways played an important role in the formation and integration of nations. It was described as ‘the political power of iron rails’ and was notably demonstrated in the case of Argentina (Alberdi 1933 quoted in Fleming 1987: 4). Similarly, considerations of political integration, rather than economic growth, underlined the major railway extensions in the People’s Republic of China (PRC) from 1949 to 1979 (Leung 1980).

The rapid growth of automobiles, together with extensive highway extensions, has diverted much academic attention in the mid-1970s. Many more academic studies have focused on the impacts of highways on the economic and urban development of cities and countries (Berechman et al. 2006, Cooper and Edwards 1982, Crane 1999, Foster et al. 1991, Forkenbrock and Foster 1990, Guiliano 1986, Gwilliam 1970, 1979, Wilson 1966, Wheeler 1976). In urban geography, the post-war suburbanization of American cities throughout the 1980s and 1990s, and the urban sprawl in the post-1990s were both intrigued by massive highway expansion (Downs 1998, Ewing 1997, Ewing et al. 2003, Gillham 2002, Muller 1995). In retrospect, the shift of focus from railways to highways was well-predicted and described in classical transport models, like the Taaffe-Morrill-Gould model. While railway development dominated the second phase of the ‘ideal-typical sequence of transport development’, road development began to become more important in the third phase; and ‘the dominance of road over railroad’ was considered as the ‘most marked characteristic’ of the fourth phase (Taaffe et al. 1963: 514). Furthermore, the beginning of mass air travel since the 1960s (Graham and Goetz 2008) and its rapid growth with the increasing affluence of the world population has caught the attention of numerous scholars (Debbage and Delk 2001, Dennis 1995, B. Graham 1998, A. Graham 2000, Goetz 2006, O’Connor 1995, 2010, Rakowski and Johnson 1979, Vowles 2000, Wright 1992, Zhang 1998).
In the review paper of Silverleaf and Turgel (1983), it is mentioned that railway investment in OECD countries was ‘primarily required for renewal and maintenance’. As mentioned throughout this book (particularly in Chapters 4, 6, 7 and 10), advances in railway technologies have been made throughout the 1980s and 1990s, especially in Japan and France. However, it is clear that both the geographical extent, and the speed and scale of investment in modern railways were limited from a global perspective. While railways in the former Soviet bloc had continued to receive heavy investment throughout these two decades, the dominance of railways in these countries was often seen as a burden after many of them turned to the market economy (Buchhofer 1995, Jauernig and Roe 2000, Kovács and Spens 2006, Loo and Liu 2005). Fullerton (1975) described the ‘Railway Age’ as the period of 1850 to 1920. In a more explicit manner, C. Buchanan (1963) wrote ‘Poor Sir Peter Parker – he talks of the Age of the Train, but the Age of the Train came to an end in 1919 and for the last 60 years we have lived in the Age of the Motor Vehicle or, as I prefer to put it, the Age of the Cart in which the railways were but a short-lived intrusion’. His paper concluded by demanding a ‘recognition of the fundamental point that the motor vehicle has ousted the railways’ (C. Buchanan 1963). Actually, the official statistics of the United Kingdom (UK) show an overall decline of almost all forms of public transport as well from 1952 to 1997 – with ‘cars, vans and taxis’ clearly ‘ousted’ not only ‘rail’ but also ‘buses and coaches’ and ‘pedal cycles’ (Department of the Environment, Transport and the Regions 1999). These striking trends in the UK were well captured and analyzed by M. Buchanan (2004: 29).

The Twenty-first Century

Major changes, however, happened around the turn of the twenty-first century. Some scholars have described the twenty-first century as a period of renaissance for railways (Haywood 1999, Loo and Hook 2002, Woodburn 2001). While these authors have used the term rather loosely, it broadly refers to the ‘revival’ of the significance of railways vis-à-vis other transport modes in all major areas like academic research, policy discussion and planning, investment and capacities, passenger ridership and freight turnovers. One of the early awakening calls of the possible ‘revival’ of railways as a transport mode was the special issue of *Built Environment* edited by Banister and Hall (1993) entitled ‘The Age of the Train’, which focuses on the opportunities brought about by high-speed railways (HSRs). Among other earlier advocates of the ‘renewed’ general significance of railways is Lowe (1993: 121), who states that ‘many transport problems of the twentieth century can be addressed by creating a diverse system in which rail plays a major role’. Instead of blaming railways for not making sufficient way to motorways, railways are increasingly seen as a potential ‘solution’ to many problems caused by the negative transport externalities of automobiles, such as the consumption of non-renewable energy, air pollution, noise, traffic injuries and congestion. About 15 years after 1993, Givoni and Holvad (2009) asked the question ‘Is the Second Railway Age Still Here or Yet to Begin?’ in another special issue of the *Built Environment* in 2009 entitled ‘Railways in Europe: A New Era?’. And their conclusion, though not without qualifications, is that ‘overall, European rail transport has certainly made a comeback and once again it is expected to take a leading role in fulfilling the mobility needs of society’ (Givoni and Holvad 2009: 9).

The reasons for the new expectations on railways as a sustainable transport mode in the twenty-first century are multifold. First and foremost are the worldwide awareness and
concerns over negative environmental impacts, particularly air pollution, caused by the heavy reliance of automobiles and air transport (Akerman and Hojer 2006, Banister 2003, Bristow et al. 2008, Committee on Climate Change 2008, European Commission 2012, Newman et al. 1995). Historically, the environmental concerns were very much focused on energy consumption, oil depletion and its associated high costs (a sizeable literature can be found on the Oil Crisis and Peak Oil) (Gillham 2002, Ullman 1954). Nonetheless, transport pollutants, particularly greenhouse gases (GHG) and the associated impacts on climate change, were getting more attention in the twenty-first century (Akerman and Hojer 2006, Deakin 2002). In this regard, the potential contribution of railways in reducing carbon emissions and energy consumption has been studied in both developed (Akerman and Hojer 2006, Bristow et al. 2008, Department for Transport 2008, Gudmundsson and Höjer 1996, Holden and Hoyer 2005, McCarthy 2010, Tight et al. 2005, US Department of Transportation 2010) and developing countries (Imura and Mitra 2003, Loo and Li 2012, Ramanathan and Parikh 1999, Ribeiro and Balassiano 1997, Wang et al. 2007). In particular, the argument of railways being more environmentally friendly has been put forward in a strong manner in Europe (Committee on Climate Change 2008, European Commission 2012, Janic 2007, Lewis et al. 2001, van Ierland et al. 2000).

Secondly, there is an increasing awareness that other drastic alternative solutions, such as the substitution of transportation by telecommunication (Loo 2012, Mokhtarian 1990, Sloman 2003, Tayyaran and Khan 2003) or the widespread use of alternative fuel automobiles (Adler et al. 2003, Bunch et al. 1993, Li and Loo 2014, Sperling 1988, 1995), are not going to work in the foreseeable future. People are not making less trips over time (Banister 1999). In addition, many of these trips were of longer distances and duration due to the increasing separation of people’s homes and their activities, ranging from work to education, leisure and recreation (Banister 2005, Cervero and Wu 1997, Ewing 1997). In cities, a sustainable transport mode which can fulfill people’s desire for high mobility with low negative environmental, social, economic and financial impacts arouse new academic interest (Holden and Hoyer 2005). The term sustainable mobility emphasizes that ‘the output from transport’ is to be maintained or increased but ‘the energy inputs, particularly in terms of the use of non-renewable resources’ are to be reduced (Banister 2007: 91). Against such background, the eminent position of railways becomes most obvious. Metro systems are in a prime position among other transport modes, especially vis-à-vis road transport, in the sustainability hierarchy for short-distance passenger transport within large metropolitan cities. In relation, the importance of metro systems within cities is also receiving more attention in the broader context of promoting rail-based transit-oriented development (TOD) (Currie 2006, Kain and Liu 1999, Kuby et al. 2004, Litman 2006, Loo et al. 2010).

Thirdly, the process of globalization has meant that many goods and services consumed at a locality are no longer produced in the vicinity (Dicken 2007). Despite the fact that the global economy has passed the stage of industrialization, people are demanding and consuming more and more goods rather than fewer of them. These goods need to be transported for longer distances and the total freight volume of the entire world has grown continuously. While long-distance sea transport relying on the container technology has solved part of the problem, the transport problems of getting manufactured goods from factories to ports remain significant. Figure 1.1 illustrates the underlying concept of inland load centres and the key role of railways in an intermodal freight transport system schematically. Accordingly, there have been more research papers on rail freight services at the national and even continental scale (Alix et al. 1999, DeWitt and Clinger 2000, Edmonds 1993, Hayuth 1987, Heaver 1993, Loo and Liu 2005, Slack 1990, van Klink and
van den Berg (1998). Nowadays, the rapid industrialization of many developing countries actually presents policy makers with a choice of building nationwide highways or railways.

Fourthly, it is the technological advance. The advanced technology of railways has dramatically transformed the ‘tarnished’ image of railways as being slow, noisy and dirty. In particular, the electrification of railways has not only made this transport mode faster and more reliable but also changed its fundamental nature from a ‘dirty’ to a ‘clean’ transport mode. HSRs have put railways in a much better position than other transport modes, especially vis-à-vis air transport, in the sustainability hierarchy for medium- to long-distance passenger transport among cities at the national and international levels. This view was expressed by Hall (2009: 68) who remarks that ‘on the evidence so far, high-speed rail in Europe is a technology whose time has come’. Much attention has also been put on the economic case of HSRs (Campos and de Rus 2009, US Department of Transportation 2009), and the importance of HSR networks in national and regional socio-economic integration (AECOM and Infrastructure Partnerships Australia 2010, Director-General for Mobility and Transport 2010) and spatial restructuring (Hall 2009, Kim 2000, Peeters et al. 2000). With a longer-term view, the development of HSRs for freight has also received some attention (Pazour et al. 2010).

Figure 1.1  A schematic representation of an inland port distribution system

Key Issues and Challenges

In light of new expectations on railways in the twenty-first century and the lack of a book which provides a synthesis on the renewed interest on railway expansion and their wide-ranging environmental, socio-economic and even political implications, this book is based both on the research of the Editors in the area over the last decade or so and those of others who are experts the railway developments in other parts of the world. It aims to provide an overview of where railways have succeeded and where they do not have a chance from a realistic but optimistic perspective. The fundamental belief is that the ‘Railway Era’ has the potentials of ‘reviving’ itself against the broad conceptual framework of sustainability. Nonetheless, there are many challenges and one should not make a sweeping generalization that ‘railways will work everywhere and under all circumstances’. In fact, railways may not represent a more sustainable option in some circumstances, even from an environmental or economic perspective (van Ierland et al. 2000, Lee et al. 2009). Based on the above understandings, the rest of this book is structured around several key issues and challenges identified to be crucial in understanding the dynamics and impacts of modern railways. Following the conceptual framework of sustainability, these issues and challenges are organized along the major dimensions of sustainability, that is, the geographical (Section II), environmental (Section III), social (Section IV), economic and financial (Section V) dimensions.

Section II: Transforming Place and Space: Geographical Dimensions

This first major section looks at the geographical dimensions of railways in transforming place and space. The key theme is to promote a better integration of the railway systems with, firstly, the surrounding environment, society, economy, and, secondly, other connecting or nearby railway systems. It consists of three chapters. Chapter 2 is devoted to the structuring impacts of mega-railway terminals which provide the interconnections both among different railway lines (city, inter-city and even international) and other transport modes. The successful planning of these mega-railway terminals is of great importance. For passenger railways, these mega terminals are often based on HSR stations. Some examples are Hongqiao at Shanghai, China and the Crossrail interchange station at London, UK. For freight railways, these mega rail-based transshipment terminals are also particularly important in shaping future rail geography (Ballis and Golias 2002, Wiegmans et al. 2007, Rodrigue 2008). Rodrigue (2008: 233) has put forward the concept of ‘Thruport’ to describe facilities ‘designed to handle high volume of transmodal rail shipments’. This chapter will focus on issues pertinent to the planning, construction and operations of these railway mega terminals.

Chapter 3 looks at issues and challenges of railway integration at the national scale. The key challenge is to promote ‘seamless’ integration of different railway lines (even systems) at different spatial scales. In the USA, for instance, there were 23 different railroad track gauges in use at the time of the American Civil War; and the use of uniform track gauges in the USA, Canada and Russia was only achieved in 1869, 1885 and 1904 respectively (Knowles 2006). Nowadays, problems of gauge differences still exist widely (Jauernig and Roe 2000). This chapter, therefore, focuses on system wide issues within the railway sector like gauges, technologies, and specific issues like costly and time-consuming interchanges and tariffs for passenger railways and transshipment for freight railways.
Finally, Chapter 4 focuses on cross-border railway integration at the continental scale and examines issues and challenges related specifically to cross-border passenger and freight transport. While differences in national gauges are major issues, the solutions are very different for railway systems involving more than one country. The problems of HSR in Europe with ‘different electrical power systems, different signalling systems, different safety requirements and even different track beds’ were highlighted by Hall (2009: 62). In relation, the successful experience of the European Union in overcoming many of these hurdles is expected to be the focus of this chapter. Nonetheless, this chapter will also highlight areas which may be unique to Europe and not transferable to other major cross-border railway networks.

Section III: Save Our Earth!: Environmental Dimensions

This section consisting of three chapters, looks at various issues about the environmental sustainability of railways. In particular, it is recognized that specific environmental benefits and costs of different transport modes differ widely among different countries (Ramanathan and Parikh 1999, van Ierland et al. 2000). Generally, environmental benefits of railways hinge on a modal shift away from other less environmentally-friendly modes; and not newly-generated traffic induced by new or improved railway infrastructure (Ribeiro and Balassiano 1997). Hence, this section focuses on case studies and factors which affect modal shifts in particular railway sectors. Several strategies are particularly relevant in promoting a modal shift of passenger and freight transport from other less environmentally friendly transport modes. Chapter 5 examines various aspects of TOD in diverting passenger traffic from automobiles for short- to medium-distance travel within cities. Metro systems, which are able to maximize mobility in a high-density environment with minimal land uptake, are the focus. Yet, metro systems are not universally suitable for cities of all population sizes and income levels (Loo and Cheng 2010, Loo and Li 2006). Technically, metro systems are not as flexible as private cars or other on-road mass transit modes to respond to vagaries in travel demand both spatially within networks and temporally at different times (Givoni et al. 2009). Apart from Asia, more success has been achieved in Europe (Bratzel 1999, Knowles 2006). In this chapter, TOD is critically examined as a land conservation tool and a sustainable solution to the traffic gridlock in cities.

Chapter 6 examines factors affecting the ability of HSRs in diverting passenger traffic from air and road transport for medium- to long-distance travel. This modal shift is particularly important because the carbon emissions of international air travel (and international shipping) are currently excluded from the Kyoto Protocol due to difficulties of assigning these emissions to specific countries (Potter and Bailey 2008). Despite some recent efforts to levy international tax on gasoline used in air transportation, ‘the aviation industry is effectively “free-riding” the efforts of other sectors of the economy to reduce CO₂ emissions’ (Ibid.: 46). Research so far indicates that the relative attractiveness of HSRs vis-à-vis air and other inter-city road transport depends on various factors, such as ‘car affection’, environmental knowledge, journey time and other level-of-service attributes (Gonzalez-Savignat 2004, Givoni et al. 2009, B. Graham 1998, Nilsson and Pyddoke 2009).

Lastly, Chapter 7 analyzes the potential of railways in diverting freight traffic from road transport. This modal shift is potentially environmentally friendly and is related to the broader concept of green logistics (Bauer et al. 2009, Rodrigue et al. 2001). Apart from the reduced air pollution, lower noise pollution and road safety hazards are major potential benefits (Forkenbrock 2001). This chapter examines several key issues involved
in realizing the potential emission, noise and safety benefits of modern freight railways. Notably, van Ierland, Graveland and Huiberts (2000) and Lee et al. (2009) have argued that new rail freight lines were not ‘better solutions’ in the contexts of Rotterdam in the Netherlands, and the San Pedro Bay Ports complex of Los Angeles and Long Beach in Southern California respectively.

Section IV: Equity and Accessibility: Social Dimensions

This section, consisting of three Chapters, deals with issues about the social sustainability of railways and its impacts on equity and accessibility. Case studies are selected around the key themes of people-based mobility (Chapter 8), place accessibility (Chapter 9) and small markets (Chapter 10).

Chapter 8 focuses on the transport disadvantaged, especially those who do not own a car in developed economies. Railways can reduce social inequity by providing non-car-users with high accessibility to opportunities. In this chapter, the transport disadvantaged concept is not limited to those who do not own a car. It also encompasses people with low income (who may own a car), children and youngsters (who may come from car-owning households), women, the elderly, the disabled (including temporary ones), ethnic minorities and all those who suffer from the ‘mobility gap’ and are ‘accessibility deficit’ (Knowles 2006). This chapter will present some cases of successful railway development that facilitates various transport disadvantaged groups in gaining higher accessibility to opportunities, particularly jobs, education and training.

Chapter 9 examines the issues and implications of the rise of localism that is becoming increasingly evident in many places internationally. The research focuses on the issues that can arise from public engagement in strategic infrastructure planning and development, and the processes which railway infrastructural projects may undergo in order to make modern railway services available. Many challenges face large-scale infrastructural development in democratic societies (Doherty 1999). Building and operating modern railways, especially HSRs, are expensive. Critically, different places will not benefit equally from increased accessibility and some may experience great environmental harm without commensurate social or economic benefits. The chapter takes three case studies of railway development at quite different scales in the UK to explore these challenges and to identify potential strategies for promoting railway infrastructural development while supporting a greater emphasis on localism.

Chapter 10 looks at the challenges of serving small markets and maintaining services with limited traffic. To what extent can railways play a role in promoting social and economic equity, and redressing spatial imbalance? Specifically, Spychalski and Swan (2004: 165) remark that ‘financial practices in some mergers have had negative impact on the ability of carriers to meet public service needs’. Moreover, one of the unintended consequences of higher speed of railways is the ‘peripheralization of the periphery’, whereby railways ‘may increasingly concentrate on profitable traffic between large urban centres while bypassing smaller and less profitable places’ at the regional scale (Hall 2009: 63). Freight rail traffic concentration and the closing down of stations with insufficient traffic are expected (Larson and Spraggins 2000, Slack 1990). However, how can these undesirable effects be better addressed? Is there a way out? This chapter addresses the various key issues and challenges involved.
Section V: Making Ends Meet: Economic Dimensions

Making ends meet is important to ensure the long-term economic and financial sustainability of railways, either for passenger or freight. In fact, the need for long-term subsidies has always been a major criticism for railways. This section (Section V) consists of three chapters which examine various specific ‘models’ or strategies that aim to turn railways from a liability to an asset. Chapter 11 discusses the issues involved in the strategy of developing or even exporting modern railway technologies (including hardware and software) as a source of income. In some cases, these railway-related technologies are exported overseas to generate foreign exchange. Some examples of railway-related hardware include locomotives (especially high-speed trains), tracks and electricity and signalling systems. Apart from these high-technology industries, railway engineering and management expertise can be provided as services to generate income. Examples from France, Germany, Japan and China are included.

Chapter 12 examines the rail-cum-property model in financing both the railway infrastructure and its operating expenses. An overview of major railway systems worldwide shows that many are not financially viable. This is partly due to the expensive initial capital investment of all major transport infrastructural projects. For instance, Flyvbjerg et al. (2003) examine 258 transport projects in 20 countries, they found that 90 per cent had cost underestimates or overruns averaging 28 per cent. In particular, traffic forecasts for rail projects were often too optimistic (Flyvbjerg et al. 2003, Gibb 1994, Loo 2009). With the rail-cum-property model, the Mass Transit Railway Corporation in Hong Kong has managed to maintain its financial viability. Nonetheless, there are various pros and cons of using this model to finance railway infrastructure and its operating expenses. This chapter will systematically examine the pros and cons of the rail-cum-property model and critically examine its applicability beyond Hong Kong.

Chapter 13 looks at the strategy of enhancing intermodalism to make railway operations financially viable at the national or even continental scale. Examples of freight railways in Europe and North America are included. In particular, double-stack railways with excellent connections with ports and other transport modes were considered as reasons for the revival of the freight railway system (Edmonds 1993, Luberoff and Walder 2000). Moreover, railway mergers and acquisitions involving transport operators with experience in intermodal service were often instrumental in making railway operations profitable again (Alix et al. 1999, Bezar 1997, McCalla 1999). This chapter, in addressing the intermodalism issue, will also touch on the key issues of railway privatization, mergers and acquisitions.

Section VI: Looking Forward

The discussion above lays the background for the rest of the book and puts railways in the wider context of comprehensive sustainability. Back in 1993, Banister and Hall (1993: 157) remarked that ‘transport technologies seldom make a comeback, save in nostalgia trips for well-heeled tourists. Stagecoaches have not made a reappearance on the Bath Road, nor sedan chairs on the streets of London. But there is a spectacular exception: railways, written off 30 years ago as a Victorian anachronism destined to atrophy before the steady growth of motorway traffic, have suddenly become one of the basic technologies of the twenty-first century’. The optimism, which was also reflected by other researchers (Haywood 1999, Loo and Hook 2002, Woodburn 2001), was very much based on the key premise that modern
railways rank high on the sustainability hierarchy in both passenger and freight transport. Some of the major arguments are being presented in this chapter.

Nonetheless, it should be recognized that these potential benefits remain promises only. In this book, there is no attempt to evaluate whether railways have revived themselves in a cross-sectional study of countries in different parts of the world. It is recognized that railways are not yet the dominant transport mode even in Europe where the HSR networks are the most comprehensive. Moreover, reverse trends of countries transforming from rail-dominant to road-dominant transport are still reported, especially in developing countries (Ramanathan and Parikh 1999). In fact, it is believed that railways can play different roles in different parts of the world, at different scales and with specific circumstances. For instance, the success of the metro system in New York City is not easily transferable to other American cities. Therefore, the focus of the rest of this book is put on identifying the key issues and challenges pertinent to understanding whether and how railways have the potential to ‘revitalize’ themselves as a transport mode in different parts of the world, and how best to support railways in realizing their potential of contributing to the environmental, social, economic and financial and geographical dimensions of comprehensive sustainability. If the ‘Railway Era’ is to be ‘revived’, the coming decades will present a golden opportunity.

References


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