Development Paths in Swiss Transport Policy

The last fifty years

Summary

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Preliminary remarks

The development paths in Swiss transport policy over the last fifty years can be appreciated against the background of the complexity and the dynamics of transport during this time. The four authors are in a position to portray this as they have actively followed and influenced these developments and the politics since the seventies in their capacity as chief civil servants (Bureau for Transport Studies, Federal Office of Transport) or as owners of consultancies (INFRAS, SYNERGO). This publication, of about 400 pages, presents the results as follows (see also the contents of the book at the end of this summary):

Chapter 1 outlines the most important interactions between transport and the social and economic developments. Chapter 2 sketches transport policy events from the mid-nineteen century to the beginning of modernisation in the nineteen-sixties and the seventies. Chapter 3 records the developments of transport policy as well as the positions and successes of the most important players, authorities, associations, and political parties. Chapters 4 to 12 deal with the relationship between the Swiss and the EU transport policies, improvements of the infrastructure, the management of transport systems, the financing of the transport systems, competition and liberalisation of the transport market, the external costs and benefits, the environmental and energy policy, transport safety/security and the spatial development.

As well as reviewing the numerous sources, the authors held interviews with those who directly influenced transport policy, namely Leon Schlumpf, Adolf Ogi, and Moritz Leuenberger, the Federal councillors (Ministers) for Transport at the time. Furthermore, younger politicians, members of the present parliament were also asked to describe their vision of the future of the Swiss transport system. The outcome of these interviews is presented at the end of the book.

This summary, also published separately, presents the various development paths in the Swiss transport policy. The development paths are mainly described through the various modes of transport. Road, rail, air transport, and inland navigation are considered to be complementary to each other but also in competition. In this, constants as well as paradigmatic shifts appear.

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This publication is directed at a broad circle of readers interested in transport policy. The book was published in German at the beginning of 2009 by Ruegger Publishers, Zurich. These publishers will also produce a French version in the spring of 2009. The present summary is electronically available in German, French, Italian, and English on the websites of the sponsors.

Introduction

"Development Paths in Transport Policy - the last fifty years" - the book examines the period of time in which the Swiss transport system underwent much needed modernisation after the Second World War.

Two very different political guiding ideas mark the beginning of this development: the decision concerning the national motorways in 1960 and the "Swiss integral concept of transport" (SICT) in 1977. Both were of programmatic nature. The national motorway decision introduced the phase of large infrastructure investment in the Swiss traffic network. The SICT proposed an integral reshaping of transport policy.

When presenting these development strands it is of interest to consider how far and to what extent these transport goals have been reached. These two guiding concepts could not anticipate all the developments in transport policy of the last fifty years. Important new initiatives and stimuli arose such as the endeavour by the European Community to open up the transport markets or the drive for a policy of increasing transport safety.

The "Decision concerning the national motorways" and the "Swiss Integral Concept of Transport (SICT)" as starting points

The Federal Council (cabinet), in their considerations concerning the extension of the Swiss network of main roads, recorded the fact that due to growing motorisation the road building authorities (then mainly cantonal) were confronted with basically new tasks which the country was not prepared for. This was particularly true for the major through traffic lines and road links between cities. Based on the "Planning of the Swiss network of national motorways" and on the revision of the Federal Constitution of 1958, the House of Representatives, and the Senate agreed to the "Network decision" in 1960.

When the SICT produced tangible results in the mid seventies, half of the planned network of national motorways was already in operation which freed towns from through traffic, increasing traffic safety and increased accessibility, and manifested its advantages. At the same time, the first political opposition surfaced because the countryside was divided up, major areas were contaminated by noise and pollutants, and energy use had increased. The SICT, conceived during the energy crisis of 1973, aimed at adapting road building policy to the new economic, social, and environmental conditions and, at the same time, at extending public transport. This concept proposed a new division of tasks between Federal and Cantonal authorities, a revision of the competition regulations, and methods of financing transport. In addition, it proposed a redefinition of the tasks of the Swiss Federal Railways (SFR) and the other public transport enterprises, and strongly supported a revision of transport law and a reorganisation of the transport administration.

However, the bill on "Co-ordinated Transport Policy" (CTP), based on the SICT, did not find favour in the eyes of the Swiss electorate (referendum) in 1988. It failed, among other things due to the proposals for financing, over the constitutional changes, the strengthening of the role and the powers of the Federal authorities as well as over the concept of transferring freight transport from road to rail. In spite of this opposition, most of the SICT recommendations remained on the agenda of the Swiss transport policy for decades.

Growing challenges

Since the seventies the challenges for the Swiss transport policy have magnified. Increased division of labour, growth of the tertiary sector, globalisation, and economic liberalisation, increasing affluence, individualisation, and demographic aging of society brought new needs of mobility and further increases in

traffic. The growing worries about the environmental damage and the energy consumption it caused extended to the global climate change. This and the increasing road capacity problems led to the transfer from individual to public transport. Moreover, questions concerning human-powered mobility ("slow traffic") received additional attention.

Around Switzerland a European policy framework was developing. The European Economic Community (EEC), later the European Community (EC), relied on a liberalised transport market; competition within road, rail, and air transport should bring about the needed increase in efficiency.

On the whole, the development in transport policy in Switzerland and the EC may appear parallel, but they show different shades and implementation speeds. The influence on one another is increasing. "Helvetisation" of the European and "Europeanisation" of the Swiss transport policy has become a famous quotation.

These diverse events in transport policy of the last 50 years are summarised in the following seven development paths.

Seven development paths in transport policy

1. Building motorways and the late modernisation of the railway

To the ever increasing number of transport users the improvement of the infrastructure has been the most tangible experience: motorways, fast track railway lines and the extensions of airports.

The major rail projects were started a relatively long time after the fast and effective commencement of motorway building. However, the yearly investment for rail was then brought in line with that for roads. Parity was reached in 2005.

Divided reactions to road building

Since the seventies, environmentally oriented circles perceived motorway building with scepticism. The Federal authorities had to re-examine controversial sections of motorways. However, the electorate (in referenda) rejected several "People's initiatives"[1] aiming at preventing the construction of further roads. After the 1960 decision concerning the national motorway network only few additional stretches were built; e.g. the Gotthard road tunnel (1965), later the northern and western motorway bypasses around Zurich and the so-called "Transjurane" (linking the new canton of Jura in the NW to the rest of Switzerland). Other proposed major projects did not gain approval (e.g. the so-called "Avanti-initiative" in 2004). However, over the years the capacity of several stretches of motorway was increased by additional lanes.

On rail: as fast as needed, not as fast as possible

The Federal authorities and the SFR replied to the ever increasing road traffic and the decreasing share of public transport with the RAIL 2000 concept. Contrary to the Japanese and French high-speed systems, RAIL 2000 was not aiming at the fastest possible links between large cities but rather at optimal connections at rail junctions and a high network effect for the whole of Switzerland. The limited size of our country and its distinct federal structure made this necessary. Today, the concept is in operation in the central areas. It will be extended in the future to the West and the East.

Starting in the nineties, regional express railway systems (S-Bahn) developed gradually in the conurbations. These services are optimised in the sense of "vertical transport chains" from the regional up to the national networks. Regional traffic is also integrated in the rural areas which strengthens the country-wide network effect of the RAIL+BUS 2000 concept, as it is now called.

The New Rail Link through the Alps (NRLA) as a major international achievement

The federal structure of Switzerland was also decisive for the conception of the two base tunnels through the Alps, the Gotthard, and the Loetschberg in central and western Switzerland; one single tunnel would not have found approval by a majority of the electorate, illustrating a growing political maturity.

[1] Electorate's request by 100'000 signatures to bring a constitutional proposal to a general vote

The function of these Alpine through traffic projects reaches far beyond the country borders. On the trans-European network maps Switzerland was a white patch for a long time. Although the NRLA promised to be the most direct rail freight service between Germany and Italy, and in spite of the fact that the Through Traffic Agreement with the EEC, concluded in 1992, explicitly refers to the NRLA, the neighbouring countries are making only slow progress with the necessary rail link extensions, as investment in their peripheries have only low priority. In view of the attempt to transfer freight from road to rail, Switzerland has been forced to invest in foreign railway lines and transhipment terminals in areas outside its borders.

The important connections to foreign high-speed rail networks, particularly for passenger transport, can best be achieved towards France. This endeavour is part of the European strategy to transfer short haul air traffic to rail, in order to create space for long haul air traffic at airports plagued by environmental worries. Airports are becoming more and more integrated into rail networks so that these two transport modes can operate in a complementary way.

Delays in the development of trans-European networks

A closer look at the Trans-European Networks (TEN), initiated in the eighties, shows that at the onset road projects dominated, particularly in the European periphery (Iberian Peninsula, Greece, Ireland). Rail projects were predominantly found in the densely populated core areas of the Community where congestion was becoming increasingly frequent. More recently, the EC increased the support of rail projects in the peripheral nations including the newly incorporated Central and Eastern European Countries. The problem with many of these TEN projects lies in the fact that these member states cannot finance their expected contribution which considerably delays the implementation.

2. Operational optimisation and managing infrastructures

From constructing to managing roads

In Switzerland the growing political opposition to major road projects led to the insight that the use of the infrastructure must be optimised. In the sixties, at first the larger cities realised that extending road networks had limitations (due to the space required) and lacked acceptance (environmental compatibility). Use of road space was improved by traffic management, priority given to public transport and the requirements of both cyclists and pedestrians were acknowledged. Minimum requirements for parking lots were combined with a policy of the highest quota allowed for new buildings (apartments and firms). The combination of these policies led to a fast growth in the demand for tramway, bus, and regional express rail services (S-Bahn).

A change of attitude had also developed at the national level. In the mid-nineties the director of the Federal office of roads demanded "less but more intelligent lanes". Since city bypasses had mostly been built, motorways were also incorporated into traffic management. The Federal authorities insisted on free-flowing through traffic, which lead to a limitation of the number of entrances and exits to the motorways. This in turn leads to neighbouring communities being bypassed and feeling themselves disadvantaged. In this way traffic control measures create new distribution problems.

Road management?

In other countries road pricing now takes on the task of controlling the traffic. Road user fees have for decades served as a financing tool for motorways, but their purpose in specific traffic control is a more recent issue and is applied primarily in urban traffic. In Norwegian cities road pricing not only serves for the procurement of financial means for road building but also influences traffic demand and the extension of public transport. The systems applied in London and Stockholm have the explicit goal of traffic control. In addition, Italian cities (Bologna, Rome) apply charges for accessing central districts of historical value.

In the mean time much progress has been made in the technology for registration and the processing of payments for road pricing and it should no longer cause reservations concerning data protection. In 2005 the Federal council presented a "Report on the possible introduction of road pricing" in Switzerland. They considered a country-wide road pricing as middle and long term option, provided it is co-ordinated with other traffic charges. However, parliament has until now refused to grant the Federal council permission even to implement pilot projects.

Railway reforms -parallels to the air traffic market

The prime example of an operational vision for public transport is the concept RAIL+BUS 2000. Thanks to the distinct networking effect, long-distance and regional traffic depend on each other similarly to the hubs for long-distance and short-haul air traffic.

The increased demand, however, creates in many places capacity problems for the railways. That is why the use of networks by interested transport companies is regulated through market mechanisms. This was made possible in the nineties when infrastructure and train operations were separated both organisationally and financially in a revision of the Railways Act and the Railway reform. The companies providing long-distance, regional and freight services have to pay for the use of the railway lines. "Train path attribution" rules the access to the network. This procedure has its counterpart in the so-called "slot management" in air traffic, i.e. the allocation of approach rights to the airports.

In 2001, the EC regulated the assignment of network capacities to transport companies, the fees for their use and the responsibilities of network operators. A European rail network operator, the RailNetEurope, was founded in 2004, merchandising and selling internationally important train paths. Switzerland is a member of this organisation.

Technical and organisational interoperability in international train transport

The EC is actively promoting the technical and organisational co-ordination in the operation of the international rail network. The goal is the "interoperability" of the rolling stock, the traction management, and safety systems as well as of IT. This not only requires major adjustments by the national railways and the international transport companies, but also for the manufacturers of rail technology. Until now these were predominantly geared to national systems of specifications and were operating as it were in a "protected market".

Interoperability is important for passenger as well as for freight traffic. Some international railway lines are de\e\oped as so-catted "freeways" foi tt\e beneftl o? fre\$vt traffic. T\\c vnterfrax tetwttn road and rail traffic, the transhipment terminals, must also be harmonised both technically and organisationally. Because of its central geographical situation, Switzerland is one of the pacemakers in Europe for both rail technology and rail management.

3. User-friendly public transport-reform of transport tasks and its financing

The SICT intended to secure an efficient system of public transport that is viable beside individual transport also by new forms of transport financing. The Federal authorities should, therefore, establish a fund for public as well as one for private transport. The first fund should be stocked by an ear-marked contribution from the proceeds of the turnover tax and by the fees from railways for using the rail network of national importance. The fund for private transport should receive three fifths of the net yield of the import tax on motor fuels, the net yield of special surcharges on fuel as well as by the Confederation's share of user taxes from the road network of national importance.

The idea of "communicating tubes" for financing transport

The partial revision of the Federal Constitution proposed in 1982 by the Federal Council to the Parliament for the "Development of the basis for a co-ordinated transport policy" (CTP) did not include proposals to fund public transport as was suggested by the SICT. However, the bill made it possible to employ financial means, originally designated only for public transport or for private traffic, for all modes of transport. This "financing across the transport modes" complicated the acceptance by road traffic associations, by parliamentary committees and both chambers of parliament. The CTP bill was rejected by the electorate in 1988.

However, the strict earmarking of road revenues had already been relaxed. The Law on motor fuel tax of 1985 allowed designated contributions to be used for industrial private sidings, redevelopment of level crossings and separating rail tracks from the road.

Politically difficult financing of the major rail projects

Major rail projects were treated differently at first: financing the first stage of RAIL 2000 (referendum 1987) followed the traditional pattern. The Swiss Federal Railways (SFR) obtained bonds at market rates from the Federal authorities or from their pension fund. Block credits for private railways and other licensed enterprises were continued.

The situation only changed with the financing of the New Railway Link through the Alps (NRLA), approved by the electorate in 1992. Interest-bearing and repayable loans were allocated to the railways mandated to build the NRLA; furthermore, the Federal authorities opened a co-financing, supported by the motor fuel tax, for the promotion of combined transport and for transporting lorries with their drivers by rail.

However, the combination of RAIL 2000 with excessive costs of the NRLA (mainly caused by additional parliamentary requests) and the links to the foreign high-speed lines all necessitated a new financial solution. The Fund for financing public transport (FPT Fund), created in 1999, and endowed with 30 billion Francs, constitutes a special fixed-term financing tool up to 2017. Although it excluded a conflict with the financial means designated to road building, this fund was supported by increasing the motor fuel tax by 10 Centimes per litre, by a redistribution of the heavy vehicles charge, a contribution from the fuel tax allotted to the NRLA and allowing limited borrowing. The prospect of "relieving the roads" by the major rail projects may have been a politically important argument in favour of accepting the bill concerning the FPT Fund by the electorate in 1998.

An extensive "Infrastructure Fund" - and support for the conurbations

The road traffic associations reacted to these financing bills for public transport by launching, in 2003, a "People's initiative" for "secure and efficient motorways". However, by undermining the constitutional article on the "Protection of the Alps"[2] and stipulating the construction of a second Alpine road tunnel (for two more lanes), it provoked much political opposition. By withdrawing the Initiative and by the electorate's refusal of the counterproposal by the Parliament, the path was opened for a comprehensive "Infrastructure Fund". Reactivating and using the "undisclosed reserves" in the Federal budget (road financing) it should be possible to complete the motorway network, eliminate bottlenecks and to maintain the trunk roads in mountainous and peripheral regions. However, the Infrastructure Fund should also serve for investments in public and private transport in conurbations. The first programmes by the major conurbations reveal that these financial means will be predominantly used for extending public transport.

With all these steps, multimodal transport financing has taken on a tangible quality. At the same time, the jurisdiction at the various levels of authority has been re-regulated with the "Reform of financial equalisation and task allocation between the Confederation and the Cantons (RET)".

4. Transport as an issue of safety/security, environmental protection, and energy saving

Transport safety/security, environmental protection and energy saving have become increasingly urgent political preoccupations with the strong growth of traffic.

Distinct progress in safety policy for road traffic

In the last two decades, the authorities on all levels have articulated demanding safety/security requirements and have systematically tackled safety/security problems.

Measures affecting human behaviour were frequently rejected when considering road transport as motoring was too much of an epitome of individual liberty. The arguments about speed reduction and the compulsory wearing of seat-belts, legislated in the seventies and eighties, clearly show this. It was easier to improve the alignment of roads by revising standards and by traffic signalling at accident-prone road sections. In cities, the interests of the weakest traffic participants could no longer be ignored. From the seventies onwards, traffic calming measures, bicycle lanes, and pedestrian crossings were introduced and from the nineties the intrinsic concept for juxtaposition or cohabitation of the various means of transport in the same road space, the so-called "Shared Space".

The Federal department of the environment, transport, energy, and communications (DETEC) developed extensive concepts for transport safety/security. The package of measures "Traffic safety policy" was guided by the "Zero vision" policy (no accident deaths). The permitted blood alcohol concentration (BAC) was reduced to 0.5 ‰ and the rest periods for lorry drivers were more strictly controlled. Measures were introduced in the areas of education, the law, technology and rescue procedures; safety reforms

[2] Constitutional article no. 84 stipulating that "border-to-border traffic shall be transported by rail" and that "the capacity of transit roads may not be increased". This article was adopted 1994 by the electorate on the basis of a "People's initiative".

were introduced for tunnel building. The intensifying action programme VIA SECURA ("safe way") was initiated in 2008; it strives for progress in problem awareness of society, behaviour of traffic participants, vehicle safety as well as for road infrastructure.

On the way to internationally co-ordinated train control

The number of accidents for rail traffic is much lower than for road traffic. The numbers of injured passengers and SFR employees have sharply diminished and tend towards zero over the last decades. Accidents on level crossings have clearly gone down since 1990. However, recently there was a slight increase in number of third persons killed; included in this category are, amongst others, cases of suicide.

Increasingly, the railway supervisory authorities have committed themselves to preventive enforcement of safety levels. While doing so, aspects of environmental protection also become relevant, such as transporting dangerous goods.

High speed, denser timetables, and cross-border operations caused new requirements in rail safety, which is why the industry, the EC, the International Union of Railways, and leading railway companies developed the "European Train Control System" (ETCS). It is based on modern telecommunication and replaces the former signalling system linked to the track by the so-called cab-signalling information. Switzerland introduced this new technology as one of the first countries, namely on the newly built line on the Swiss plateau between Olten and Berne and in the Loetschberg base tunnel.

***The** „Single **European** Sky" - **a new framework for** safety policy*

Today air control is predominantly ruled internationally. SWISSCONTROL operated air control at the expense of the Federal authorities until 2001. Then, the civil and military air controls were merged into one single enterprise named "Skyguide". However, already in 1990 Switzerland had joined the European air traffic control organisation EUROCONTROL. Ten years later the EC together with Switzerland worked out guidelines for rearranging the European air space into a "Single European Sky". Switzerland has already adopted the relevant regulations into its national law.

Liberalisation and the tough air transport competition created by it led to institutional reforms whose significance were not immediately recognised. Switzerland's Air office as the air traffic authority for a long time only exercised a lax supervision with a small staff and an organisation, not oriented towards a distinct separation between safety checks and promoting air transport. For decades, this organisation was able to perform at high level of safety because, in a regulated market, the responsible company Swissair could finance both the training of its personnel and meet all other measures. This changed with Swissair's decline and the opening of the markets. Increased safety requirements had to be imposed on the market participants. The Federal Office of Civil Aviation (FOCA) was not in a position to implement fast enough the institutional reorganisation and the increase in personnel needed by these developments. The increasing frequency of serious air accidents induced the Department (Ministry) of the Environment, Traffic, Energy, and Communication (DETEC) to mandate an assessment of the air safety organisation by foreign experts. Considerable problems were uncovered and subsequently the necessary measures were undertaken to correct them.

Furthermore, the necessity of new or intensified market supervision by state regulators also emerged in the context of other areas of liberalisation, the railways, road freight traffic, telecommunication, and electricity.

"Security", protection against criminal acts, is a special aspect for transport. Drastically strengthened security measures were introduced in air transport after 9/11, the attack on the New York Twin Towers in 2001. The development of vandalism and harassment on the railways called for more frequent surveillance in otherwise unaccompanied regional trains. Generally, the costs of fighting criminality are strongly increasing.

Different ways towards environmental protection

Progress in the fields of environmental protection and energy saving is less unambiguous than for transport safety. It can also generally be said that construction or technological measures can be more easily implemented than regulations imposing a change in individual behaviour and/or businesses. This is illustrated by charges or taxes for environmental impacts or energy consumption.

Construction solutions include better embedding of new motorways and railway lines into the landscape or building tunnels for them. Feasibility studies compare benefits and costs of major projects. Environmentally friendly construction is often particularly expensive (examples: the A4 motorway in the "Knonaueramt", Canton of Zurich; new railway line Mattstetten -Rothrist, on the Swiss plateau). Noise abatement measures are also important, up to now several billion Francs have been invested in such projects.

It has also become apparent that regulatory measures can be successful when applied to combating emissions at the source, e.g. the compulsory catalytic converters for road traffic and the internationally required improvement of rolling stock (not much progress as yet in rail freight traffic).

The most embracing - even if not easily applicable - attempt was developed in the eighties by the cantons with their plans for measures to improve air quality. The trigger for these measures was the damage in forests known as "forest dieback" ("Waldsterben"). In retrospective, politicians have criticised these measures as exaggerated and rushed and that the "forest dieback" was a "lie". In contrast, long-term scientific studies concluded that the measures taken in those days were clearly neutralising soil acidification, an important cause of damage.

Aircraft noise - an allocation problem

The problem of noise abatement at airports is considerable and until now unsolved, particularly in Zurich. Because an international treaty between Switzerland and Germany was rejected by the Swiss Federal Parliament the approach to Zurich airport over German territory was made quasi impossible; consequently airport noise now impacts on the densely populated regions in Zurich. The process of working out the "Sectoral Plan for Aviation Infrastructure" for Zurich airport began well. However, solutions to which both the Swiss and the southern-German sides could agree to, are hampered because of the lack of confidence from the eighties and nineties in the airport management and cantonal government. A solution was developed with a "curved northern approach" avoiding German territory; however, new aeronautical findings raise questions about its feasibility. The Federal authorities now intend to consider three landing and takeoff routes for the "Sectoral Plan for Aviation Infrastructure" solutions which could be implemented with or without agreement by Germany.

Market economy or voluntary solutions?

The path to market instruments is tricky, particularly in the field of transport. Several proposals for lowering the external costs of transport were discussed politically in the eighties and nineties: eco-bonus, a C02-charge, an ecological reform of the taxation system, and the Alpine crossing exchange. However, the only concrete proposal by the Federal Council for a $C0_2$-charge was rejected by industry. Voluntary measures were agreed upon: a subsidiary C02-charge - fiscally neutral - could be considered if the voluntary measures would not have sufficient effect.

In the mean time it was recognised that the voluntary approach was not feasible in the domain of transport. Consequently, a so-called "climate centime" on fuels instead of a C02-charge was introduced as an alternative. Its revenue finances climate protection measures in Switzerland and the purchase of so-called "tradeable emission permits" (TEP) abroad. It will become clear in the future which approach is the most likely to be successful, rewards, "punishment", incentives, or trading emission allowances.

5. Cost realism as competition factor between the modes of transport

A continuous dispute

The dispute over the external costs of transport left its mark on the last decades. The discussion was brought to public attention in the seventies by economists and environmental scientists. The dispute was kindled because the two transport carriers road and rail have very different profiles of environmental damages and energy consumption. Cost realism - charging these costs to those who cause them - was seen by the SICT commission as a means of fair competition between the carriers as the commission wanted to establish an "even playing field" for the carriers. On the one hand it was a question of internalising external environmental and accident costs incurred by road traffic because construction and technical measures could not solve all the problems. On the other hand, rail users should pay the non-recoverable infrastructure costs that remain after compensating for services provided in the public interest.

For years the scientific and political arguments concerned the amount of the external costs of the various means of transport. Where the orders of magnitude were accepted, the road user associations, who admittedly have a vested interest, juxtaposed the external costs to the total benefits produced by road traffic. They kept on emphasising that public transport could not even cover its infrastructure costs.

It is still disputed politically which instruments should be used to reduce external costs. The calculated external costs should be imputed through intemalisation charges. Incentive charges meet with particular resistance. These are applied in order to achieve a desired physical goal, for example reducing the CO2-concentration in the air to a defined level or reducing the maximum number of lorries crossing the Swiss Alps per year.

The Mileage-related heavy vehicles charge (MRHVC) the only, yet pioneering solution until now

The Mileage-related heavy vehicles charge (MRHVC) is until now the only substantial intemalisation of external cost, introduced as part of the policy for shifting freight transport from road to rail. In connection with the land transport agreement, it had been accepted by the EU in return for an increase of the total laden weight limit of 28 tonnes - not negotiable for years - and for building the New Rail Link through the Alps (NRLA). The MRHVC is skimming off the rise in productivity brought about by increasing the laden weight from 28 to 40 tonnes. It also contributes in part to financing the investments in rail freight traffic, by shifting traffic from road to rail.

The policy of shifting freight traffic from road to rail, vital for Switzerland - and notabene also for the other Alpine countries - arises from the necessity of protecting the Alpine regions and their communities. The fact that the electorate accepted the MRHVC is probably due to several reasons: Lorries disturb many people with their environmental damage, noise, and their claim to road space, which particularly applies to conurbations. For many years the growth of heavy vehicles traffic on the internationally significant St. Gotthard route has been a major problem. The St. Gotthard tunnel cannot be extended for constitutional reasons.

Foreign countries proceed only slowly

It is difficult to include foreign countries in the policy of shifting traffic from road to rail. Among the neighbouring countries, Austria is understandably the most likely to participate; supporting measures in some areas can also be expected from Germany. The EC has also made attempts towards intemalisation of external costs by its policy for charging road transport. It first achieved a harmonisation of fiscal charges (road traffic taxes, fuel taxes, user charges for motorway) and then charged for the actual infrastructure costs (construction, operations, noise, and soil pollution). Finally, the EC now takes the step towards "fair and efficient prices" for transport in general. According to the EC Directive on charging for the use of infrastructures (revised 2006 and again 2008), the system for charging should reflect the entire traffic costs, i.e. should also include environmental and accident costs.

Switzerland has introduced emission-dependent landing charges for air traffic and a kerosene tax for inland flights. The latter could not until now be introduced on an international basis.

6. "Europeanisation" of the transport market and of transport law

For the implementation of a realistic cost based Swiss transport policy and to allow fair competition between the various modes of transport new government instruments are necessary. Switzerland attempted such an adjustment of the distorted market by introducing the Mileage-related heavy vehicles charge. The introduction of this charge made Switzerland a world leader in the field.

The EC follows a primarily different approach in its competition policy: liberalising of the transport markets and, therefore, competition *within* the individual transport modes. This policy of liberalisation depends on increased efficiency of the individual companies by means of deregulation, i.e. less state interference.

Opening the market proceeds faster for the road than for the railways

The way to a free transport market in the EC proved to be stony until the eighties - the national market structures in the member states being very resistant to change. Cabotage rights for road transport could not be obtained without a struggle; it was similar for open access to networks for rail operators. It was only after an action at the European Court brought by the European Parliament against the Council of Ministers for failure to act in the field of transport policy that fast progress was made in road transport; it

took longer for railways. It is of great importance for Switzerland that the Land transport agreement of 1999 between the EU and Switzerland contained important elements for opening the markets for the benefit of both sides. The solution of bilateral agreements was strengthened by this treaty.

Special organisational steps were necessary for rail transport. Open access to the network requires a separation of infrastructure and railway operation, initially in accounting but finally a total organisational separation has to be aimed for. Builders and the operators of the transport infrastructure should basically be independent from the transport companies using these traffic routes. Only in this way can a fair non-discriminative competition between different rail operators using the infrastructures be achieved. Up to now, many member states have reached a separation of these areas only in accounting. After problems with liberalisation the EC now tends to leave open to the member states how far they want to implement liberalisation for railway transport.

With the revision of the Railway Act (1996) and the Railway reform 1 (1999), Switzerland followed the trend of the international organisation of the transport market. However, neither for regional rail traffic nor for long-distance passenger traffic was substantial progress in liberalisation made. Although network access is now open, Switzerland requires a concession for fixed-cycle, timetable-bound passenger traffic which excludes competition on the same line. A balance has to be achieved between an increase in efficiency by opening the market against losses in synergy between integrated services (RAIL 2000) and in mixed traffic lines (passengers and freight). The railways *and* the authorities are reticent about further liberalising steps.

Subsidies are possible

Another important element of open markets is to conditionally renounce subsidies by the member states for public transport; "conditionally" inasmuch as it is allowed to support companies that render a public service. The EC has more or less completed the respective regulations. With the revision of the Railway Act in 1996, Switzerland replaced the subsequent deficit coverage subsidy by prior performance mandates for public services. This especially concerns the provision of basic transport services for less inhabited areas, a politically important topic.

In the context of international road traffic markets, weight limits, training and rest time for drivers had to be regulated. Initially, Switzerland vehemently resisted allowing the high axle weights applicable in the EU; however, with the Land transport agreement in conjunction with the MRHVC Switzerland could agree to it.

The "Freedoms of the Air" and the consequences of the refusal to join the EEAfor Switzerland

The international market regulations for air traffic primarily concern the so-called "freedoms of the air"[3]. The way there, in the face of the prevailing traditional agreements between individual states was difficult; it was only with the Single European Act of 1987 that a substantial opening of the market was brought about. The first ruling concerned the carriage of passengers from the country of origin to a partner state and vice versa. The attribution of capacities between the airlines was also relaxed and the carriage of passengers from a partner state to a third state starting in country of origin was also made possible. Since 1993 the right to extraterritorial traffic applies without this reservation and since 1997 airlines are also qualified to carry passengers within the partner state, i.e. to the cabotage.

The Swiss refusal in 1992 to join the "European Economic Area" (EEA), with the considerable liberalisation it would have brought about, was a severe blow to Swiss air transport. It was only ten years later with the "Bilateral agreement 1", the air transport agreement, that the essential freedoms of the air were agreed upon with the EC.

7. From defensive land use planning to active spatial development based on transport

Urban sprawl: an important trigger to land use planning

In the last 50 years, politics was preoccupied not only by environmental problems but also the effects of transport upon spatial development. In 1969 the electorate adopted the constitutional[4] article 22^{quater} on spatial planning. The starting point was the population growth from the sixties onwards, which together

[3] „Freedoms of the air" concern the rights to overfly or to fly to/from/within other countries by an aircraft from its country of origin; these are assigned in international bilateral air transport agreements.

[4] Article 22^{quater} in the old Federal Constitution; article 75 in the new Constitution of 2000.

with improved accessibility of the peripheral areas due to the motorways brought about a strong demand for building sites that had to lead to urban sprawling. The Law on water pollution control of 1971 contained a requirement for general sewerage plans; together with the Federal Decree from 1972 concerning "urgent measures for spatial planning" it constituted important points for a separation between building and non-building area, i.e. a restriction of building zones.

National overall concept of a "concentrated decentralisation"

The overall concept "CK-73" by the Federal Council's Delegate for spatial planning then presented a country-wide scheme which opposed the increasingly big conurbations by the aim of an equable hierarchy of "central places". The task of defining the transport consequences of this overall concept was written into the task assignment of the Federal Commission for the Swiss Integral Concept of Transport (SICT)..

The overall concept for spatial planning designed for "concentrated decentralisation" goes in the same direction as the efforts by regions and cities, namely to assert themselves as internationally desired locations. Transport conditions were recognised as an important factor for this. Since there had been perceptible improvement in accessibility by the growing motorway network, the interest was concentrated on new railway investments, and the RAIL 2000 project yielded the desired impact. Constructing or extending the national airports of Zurich, Geneva and Basle, as well as the smaller airports of Berne, Sitten in western and Agno in southern Switzerland, had for a long time also been an element of location competition.

Spatial development in conurbations based on the public transport services

Set in motion by regional policy, the predominantly defensive and reorganising spatial planning became the active *spatial development.* This also affected the naming of the respective governmental offices at the federal and cantonal levels. In town planning the spatial development was also reflected by the endeavour to re-zone land for building around the larger railway stations. The Berne region, for instance, has for years been pursuing the creation of development centres around stations of the Regional express railways (S-Bahn). Zurich has done the same in connection with the newly built "Glattal" light rail system for the most important development area of the conurbation. Geneva built exhibition and conference facilities in the immediate vicinity of the airport. The area surrounding Kloten airport has become an important regional shopping centre. These developments are mainly promoted jointly by private investors, public authorities, and transport companies.

Since the nineties the Swiss regional policy is increasingly directed towards the urban areas. The cities were recognised as the driving force behind the economy but at the same time the "inhospitality of cities" was recognised as a national problem. The "Fundamentals of spatial structure for Switzerland" of 1996 postulated a new strategy for the renewal of cities and a spatial restriction of conurbations. These endeavours led to an integral conurbation policy by the Federal authorities. It provided a regional policy which combined a simultaneous orientation towards urban *and* rural areas. Such an orientation would have appeared inconceivable during the previous decades.

The financial means for extending transport facilities in conurbations will, from 2008, be provided by the "Infrastructure Fund" financed by charges on road traffic. Yet for several conurbations the main priority for investments will be public transport projects. This tendency will most probably be continued with the formation of the much-debated "Metropolis Switzerland".

Concluding Remarks

The history of the Swiss transport policy in the last 50 years is marked by the combination of several significant development paths. Based on an improvement of the infrastructures an extensive modernisation of road and rail transport has taken place. This did not end at the national border - the integration into European transport networks is now in full progress.

A financial solution was found for this improvement in the infrastructure that brought about the creation of funds for public transport, besides the means earmarked for road construction. The two financial tools

are, furthermore, not strictly separated; depending on the area of responsibility - such as the New Rail Link through the Alps (NRLA) - to a certain degree there is permeability.

Because of the very strong increase in traffic, the major infrastructure improvements were not able to prevent certain bottlenecks in either the road or on the rail; it was similar for air transport, i.e. on air routes and partly also in the airports. Questions of operational optimisation for all carriers became uppermost. On the international level, interoperability became a must for technical and organisational solutions.

Transport systems, both national and international, are guided by competition policy. Switzerland pursues a policy of competition *between* the transport carriers, whereas the EU one *within* the transport carriers, i.e. between the transport companies. In professional jargon this is called mter-modal and m/ra-modal competition. In Switzerland the intermodal competition between rail and road is based on the concept of "a level playing field" concerning infrastructure investments and the charging for the external costs of transport. In Europe-wide transport, intra-modal competition is applied through liberalising the markets; key factors are free access for railways and freedom of services in air transport. However, there seem to be limits of liberalising for the railways, particularly for passenger traffic. Fixed-cycle, timetable-bound passenger traffic, which is the basis of the Swiss RAIL+BUS 2000 concept, is subjected to certain concession conditions: service providers may not compete against one another on the same line.

In the last fifty years, questions of *"compatibility"* or requirements of *transport safety/security* and *environmental protection* increasingly left their mark on constructing and operating the infrastructure as well as on competition. Building projects have to be better integrated into the surrounding landscape which increases their costs. Furthermore, environmentally friendly and safe means of transport should be granted better market chances than polluting ones. Regulatory measures can reduce strongly noxious emissions. However, here too, the "polluter pays principle", i.e. the concept of internalising external costs of transport, must be the guideline. Switzerland has made an important step in this direction by introducing the "Mileage-related heavy vehicles charge".

Compatibility of transport must also be established with reference to *spatial planning policy.* In this context the motorcar has been both a blessing and a curse. On the one hand it has developed peripheral areas - amongst them mountainous areas; yet on the other hand it has contributed to urban sprawl in conurbations and along motorway corridors. Public transport has a difficult task in providing access to those areas. Nevertheless, the RAIL+BUS 2000 concept and the Regional express railways (S-Bahn) strongly support the urbanisation and a re-urbanisation.

The authors, on the whole, interpret the integrative transport policy of the past fifty years as a linear development towards *sustainability* in the transport sector. After two decades of active promotion policy for public transport, initial success signals can be seen in the stabilisation of the modal split between private and public transport in favour of the latter.

Summary of the book's contents