Available online at www.sciencedirect.com

ScienceDirect

Transportation Research Procedia 00 (2017) 000–000

Transportation Research Procedia

www.elsevier.com/locate/procedia

World Conference on Transport Research - WCTR 2016 Shanghai. 10-15 July 2016

Understanding the factors influencing road public transport policy implementation in Taiwan

Chien-Pang Liu[ab]*, Helena Titheridge[a]

[a]*Centre for Transport Studies, UCL, Gower Street, London WC1E 6BT, UK*
[b]*Ministry of Transportation and Communications (MOTC), Renai Road, Taipei 100, Taiwan*

Abstract

Many studies [1-4] have shown that improving bus-based public transport is a more cost-effective and flexible option compared with rail investment. The Taiwanese National Road Public Transport Plan (NRPTP) was launched in 2010 to increase bus patronage and public transport market share in Taiwan. A qualitative method was adopted to explore the key factors influencing attainment of NRPTP objectives. The key factors include a lack of understanding of NRPTP objectives within implementing agencies, patchy local road public transport proposals, insufficient implementing capacity, insufficient skilled street-level-bureaucrats, lack of Mayoral commitments and resource limitations. In addition, this study draws out some suggestions for the next period (2017-2020) of NRPTP implementation. The suggestions include a method to formulate the policy objectives, NRPTP guidance revision, adjustment of the policy implementation process, better monitoring, providing greater support to the local implementing agencies, raising NRPTP implementation up the list of priorities within local authorities, and relaxing the current limitations on budget spending.

© 2017 The Authors. Published by Elsevier B.V.
Peer-review under responsibility of WORLD CONFERENCE ON TRANSPORT RESEARCH SOCIETY.

Keywords: Policy implementation, top-down, bottom-up, public transport

* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .
E-mail address: author@institute.xxx

2214-241X © 2017 The Authors. Published by Elsevier B.V.
Peer-review under responsibility of WORLD CONFERENCE ON TRANSPORT RESEARCH SOCIETY.

1. Introduction

Public transport services are lifelines to work, education, leisure and tourism, especially for those who do not or cannot drive, low income households, people with disabilities, students or the elderly [5]. Public transport is also an important tool to address car dependency, and the urban congestion and air quality concerns associated with car dependency [4]. In many circumstances, the provision of public transport is only possible at a financial loss [6]. Many studies [1-4] have showed that improving bus-based public transport is a more cost-effective and flexible option compared with rail investment.

Public transport, especially bus, has gradually lost its competitive advantage comparing with private transport (car and motorbike) in Taiwan [7]. Bus patronage decreased from 1,638 million in 1991 to around 1,038 million in 2009, dropping by about 37% (Figure 1) [8]. As a result, the market share of public transport in Taiwan dropped down to as low as 13.4% in 2009 [9]. Over the same period, car and motorbike ownership per thousand people steadily increased from 140 and 368 in 1991 to 247 and 632 in 2009 respectively (Figure 1) [8].

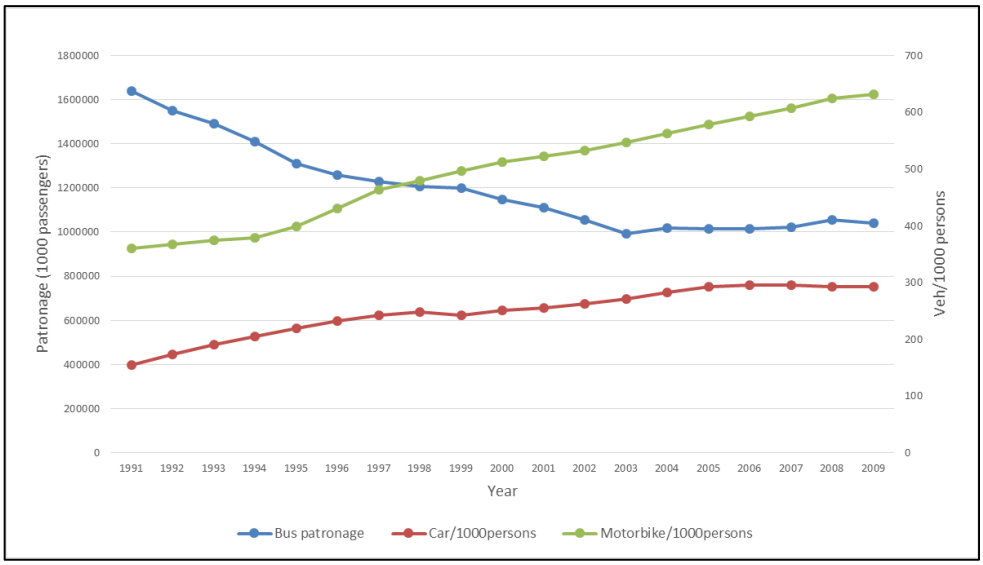

Figure 1 Bus patronage and private vehicle ownership (up to 2009) [Data source: [8]]

Declining public transport patronage and market share, and increasing private vehicle use have caused severe traffic and environmental problems [10, 11]. Carbon dioxide emissions from road transport increased from 19.8 million tons in 1991 to 32.7 million tons in 2009, an increase of about 44% [10]. About 86% of carbon dioxide emissions from the road transport sector are caused by private road vehicles [11].

In 2010, the Taiwanese Ministry of Transportation and Communications (MOTC) launched the National Road Public Transport Plan (NRPTP) to try to change mode choice behaviour towards road public transport and to increase road public transport patronage [12]. The NRPTP sets two key objectives: to increase bus patronage by 5% annually, and to raise public transport market share to 18% by 2016, to 20% in the mid-term (by 2020), and to 30% in the long-term (by 2025) [12, 13].

After 6 years of NRPTP policy implementation, it can be seen that these objectives are not being met (see Table 1). The objective of an annual bus patronage increase of 5% was only attained in 2010, the first year of NRPTP implementation. Over the following four years, bus patronage increased at a rate lower than the desired 5%; the size

of the increases decrease each year from 4.91% in 2011 to 1.57 in 2014, until finally in 2015 bus patronage decreased by 1.5% compared with the previous year.

Public transport market share increases steadily between 2009 and 2014, but by less than 1% annually (Table 1). By 2014 public transport market share had reached 16%. Based on the increases achieved in previous years, the possibility of increasing public transport market share by a further 2% in 2 years to 2016 seems low. It seems that the short-term target, at least, for public transport market share is unlikely to be met.

Table 1 Bus patronage and public transport market share trends

	Bus patronage (1000 passengers)	% of bus patronage increase	Bus market share (%)	Public transport market share (%)
2009	1,038,779	--	8.1	13.4
2010	1,109,829	6.84	8.2	13.9
2011	1,164,297	4.91	8.2	14.3
2012	1,191,741	2.36	9.0	15.0
2013	1,220,056	2.38	8.6	15.2
2014	1,239,178	1.57	8.6	16.0
2015	1,220,590	-1.50	N/A	N/A

Sources: [9, 14-18], [8]

The aim of this paper is to identify why the NRPTP objectives of increasing bus patronage by 5% per year and increasing public transport market share to 18% and above are not being achieved - what are the key factors which have contributed to the plan's poor outcomes? A qualitative approach was adopted to look into the 6 years of NRPTP policy implementation. Based on our findings, we then make some suggestions as to how future NRPTP policy implementation might be improved. The paper begins with a review of the policy implementation literature. This is followed by an overview of Taiwan, its transport systems, the NRPTP and its implementation mechanisms. Details of the methodology used are presented in section 4. Section 5 presents our findings. This is followed by a discussion and some conclusions.

2. Literature Review

Policy implementation studies examine the 'gap' between what was planned and what occurred as a result of a policy [19]. Policy implementation is a delivery process that turns a policy into practice. As Sabatier and Mazmanian [20] stated 'Implementation is the carrying out of a basic policy decision'. Policy implementation plays a decisive role, affecting whether the policy is successful or not. It can be seen as an interaction process between making objectives and carrying out those objectives. In addition, policy implementation is, after a policy decision has been made, the process of bringing together necessitated resources in a cohesive way to carry out or accomplish the established objectives [21]. Policy decision-making cannot be detached from policy implementation [22]. Likewise, policy will not be accomplished without a proper policy implementation design [22]. Therefore, the passing of a policy does not guarantee success on the ground if that policy is not implemented well.

There are three main themes that have developed in the policy implementation literatures: implementation methods, the implementation factors affecting the outcomes, and the stakeholders and their relationships [19]. These are discussed in turn below.

2.1. Implementation methods

Three main implementation methods or approaches have been identified within the literature: top-down (forward mapping), bottom-up (backward mapping), and synthesis approaches [21, 23-27].

Top-down implementation begins often with central government or the policy-maker [23]. Policy implementation is the hierarchical execution of centrally defined policy intentions [23]. Top-down theory emphasises statute formulation and central government control, with central government supervising the actions of implementers [26, 28].

The bottom-up approach assumes essentially the converse of the top-down approach. Dispersed and decentralized decisions, flexibility, and discretion are the basic rules for the bottom-up approach [26]. The focus is on 'the specific behaviour at the lowest level of the implementation process that generate[s] the need for a policy' [29]. Bottom-up theory starts by mapping the network of actors at the bottom of the implementation chain and asks them about goals, strategies, activities, and contacts [23]. It then uses the contacts to develop a stakeholders' network covering local, regional, and national actors involved in the relevant governmental or non-governmental programmes [23]. Bottom-up theory does not draw as clear a line between policy decision makers and policy implementers as top-down theory. This provides a mechanism for moving street-level-bureaucrats from the role of implementers to the role of policy-makers in both the public and private sectors.

Both top-down and bottom-up have faced some criticisms [21, 23, 24, 30]. Top-down approaches have been criticised for neglecting the knowledge and expertise of the street-level bureaucrats and for lacking tolerance of diversity [24]. On the other hand, bottom-up approaches have been criticised for overemphasising the level of local autonomy, and for inconsistent accountability of the policy controller. In addition, a bottom-up approach can be a slow and potentially costly way to accomplish change [26]. It costs huge amount of time to form stakeholder groups, assemble basic information about a problem, agree on issues and pilot projects, evaluate the effects of pilots, and transfer lessons to other groups [26].

A synthesis approach focuses on combining a top-down and a bottom-up approach.[24]. For a policy with a high level of conflict about the goals or intent of that policy and high uncertainty about which actions will achieve those goals, where a top-down approach cannot be imposed and where a bottom-up approach would be far too risky and unfocused [24], then neither top-down nor bottom-up approaches are appropriate and a synthesis approach may be the answer . The precise mix of top-down and bottom-up will depend on how the policy designer wishes to deal with potential policy conflicts and uncertainties [24].

2.2. Policy implementation factors

Several studies have asserted that implementation outcomes are affected by factors such as policy objectives, policy resources, organizational communication processes, characteristics of implementation agencies, economic, social and political conditions, the attitudes of implementers and bureaucratic discretion in implementation [19, 31-33]. Figure 5 summarizes the relationships between all these factors. Each of the factors are discussed in more detail below.

- Policy standards and objectives: Policy objectives are the starting point for the analysis of implementation processes. As Pressman and Wildavsky [28] said 'implementation cannot succeed or fail without a goal against which to judge it'. Whether a policy has clear, unambiguous and consensus goals is important for policy implementation [31].
- Policy resources: Resources could be in the form of funds or other incentives, which facilitate the administration of a programme [31]. Inadequate resources input will make it difficult for the policy objectives to be achieved [31, 32].
- Organizational communication and behaviour: This represents different degrees of commitment and coordination among and within the organizations related to a policy [27]. Early understanding, and having agreement with the policy among these organizations can increase motivation to make the implementation successful [27].
- Characteristics of the implementing agencies: This factor consists of both the formal structural features of implementing organizations and the informal attributes of their personnel. Van Meter and Van Horn [32] mention the competence (knowledge and skills) and size of an agency's staff, and the degree of hierarchical control of processes within the implementing agencies.
- Economic, social and political conditions: These form important framework conditions for implementation and include public opinion, supportive socio-economic context and political conditions [27].

- Attitudes of implementers: This includes the will and interests of those responsible for implementing the policy [33]. Experience has shown that key persons in an organization can be very influential in the success or failure of a reform [31, 32]. The attitudes of implementers are affected by policy resources, economic, social and political conditions, organizational communication and behaviour, and characteristics of the implementing agencies [32].

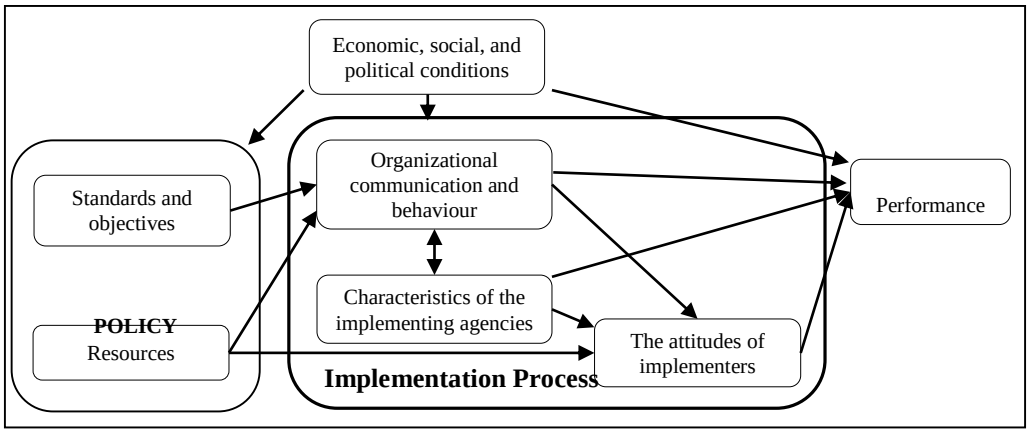

Figure 5 Policy implementation model [31-33]

2.3. Stakeholders

The third key theme in the policy implementation literature relates to the involvement of stakeholders inside and outside of the implementation agencies. Successful policy implementation relies heavily on understanding the internal and external stakeholders and their relationships [25]. O'Toole Jr [34] categorized governmental relations into four types: vertical intergovernmental relations, horizontal intergovernmental relations, regulatory relationships between government and the private sector, and contracting ties with the private sector. Vertical intergovernmental relations refers to the level of command and control, and compliance relationships, between the higher tier government and its subordinate ones, as set by statutes. Horizontal intergovernmental relations refers to the extent of collaborative relationships between government agencies and departments. Regulatory relationships are those where the government has rights by statute to permit, oversee, suspend or cancel the operation of a specific service. The rights and obligations of a contracting relationship is set by, and builds on, the contracts between government and private sector organisations.

2.4. Implementation of transport policies

There have been a number of studies that have examined the implementation of transport policy [35-39]. Fraser, Dougill [35] showed that including frontline target groups at an early stage of the decision-making process, through community participation, played a key role in the successful formulation of sustainability indicators. Lutsey and Sperling [36] and Schreurs [37] found that decentralizing decisions about climate change measures led to better outcomes. Lumsdon and Tolley [38] and Gaffron [40] studied the effects of local authorities' involvement in national walking and cycling policies' implementation in the UK. Both studies highlighted the importance of local authorities' attitudes, and that a high level of commitment within the local authorities led to a sustained and consistent implementation. May, Jopson [39] concluded that public and political acceptability, financial barriers and technical feasibility contribute to the success or failure of implementation of transport policy in a study of decision making requirements for the formulation of sustainable urban land use. Reviewing previous studies on transport policy implementation, it shows that there is a lack of studies of this nature looking at road public transport (bus) policy implementation.

3. Overview of the NRPTP

3.1. Taiwanese Surface Public Transport

Taiwan is an island country with an area of about 36,000 km^2, a population of more than 23 million, and population density of 649 persons/km^2 [41]. District is the smallest administrative body and neighbouring districts are clustered in cities and counties. Above the city and county governments (local authorities) is central government. There are 352 districts in Taiwan Island clustered in 19 cities and counties. There are 6 metropolises: Taipei City (capital city), New Taipei City, Kaohsiung City, Taichung City, Taoyuan City, and Tainan City, which contain about 70% of all the population in Taiwan, as seen in Table 2. Cities/counties in northern Taiwan, by and large, have higher population density and greater public transport market shares than those in other parts of the island.

Table 2 Characteristics of cities/counties

		Population	Population density	Public transport market share (2010)	Local Transport Authority
Taipei City*	Northern Taiwan	2,706,030	10,049	37.6%	Yes
New Taipei City*		3,966,052	1,926	25.9%	Yes
Keelung City		372,787	2,813	31.9%	Yes
Taoyuan City*		2,086,081	1,726	11.8%	Yes
Hsinchu County		539,173	382	8.0%	Yes
Hsinchu City		432,860	3,478	6.1%	Yes
Taichung City*	Central Taiwan	2,731,500	1,225	6.8%	Yes
Miaoli County		565,704	310	7.6%	No
Changhua County		1,289,274	1,070	4.6%	No
Nantou County		511,518	125	5.1%	No
Yunlin County		701,898	518	4.2%	No
Tainan City*	Southern Taiwan	1,885,376	836	4.8%	Yes
Chiayi County		521,591	267	5.5%	No
Chiayi City		270,896	4,540	3.3%	Yes
Kaohsiung City*		2,778,835	933	6.0%	Yes
Pingtung County		843,981	303	5.2%	No
Ilan County	Eastern Taiwan	458,313	209	6.2%	No
Hualian County		332,424	72	3.9%	No
Taitung County		223,189	62	3.8%	No
Whole Taiwan		23,217,482	649	13.9%	

'*' : the 6 metropolis in Taiwan

Data sources: Taiwan Ministry of the Interior [41], Department of Statistics [9]

Surface public transport systems in Taiwan include high-speed rail (HSR), intercity rail, intercity bus, metro, and city bus, as shown in Figure 3. Taiwan high-speed rail, which runs along the west coast of Taiwan, with an operation length of 345km, started operation in Jan, 2007. The Taiwanese intercity railway, which is operated by the MOTC, has an operation length of about 1,085km, and covers both east and west coasts. Intercity bus networks are regulated and licensed by central government – the Directorate General of Highways (DGH), and operating by private bus companies. Metro systems operate in 3 cities: Taipei, New Taipei and Kaohsiung. Local bus networks, which refer to the bus routes running in a single specific administrative area, are regulated and licenced by the local authorities (city/county governments) and operating by private bus companies.

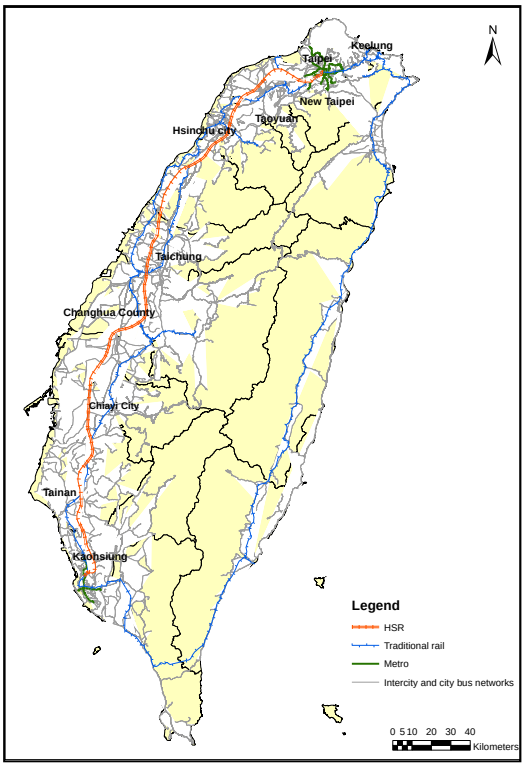

Figure 2 Surface public transport systems in Taiwan

3.2. Pre NRPTP

Prior to the implementation of the NRPTP in 2009, only about US$43 million was invested annually in road public transport by central government [12, 42, 43]. This amount is about a quarter of the NRPTP annual budget (US$166 million).The Directorate General of Highways (DGH) was responsible for implementing the budget. Most of the US$ 43 million budget was used to subsidise non-commercial bus services and for old buses replacement [44]. This very limited budget was not enough to cover all of the deficit arising from operating non-commercial bus services [45]. As a result, during 2006 and 2007, many operating companies applied to central government to remove non-commercial rural bus services from the bus market [43, 45]. Only a small part of the budget was used to subsidise replacement of old buses and for bus infrastructure refurbishment.

3.3. The NRPTP

As mentioned in section 1, the National Road Public Transport Plan (NRPTP) was launched in 2010 to address environmental problems associated with rising car and motorbike ownership, and to ensure access to services and facilities for those who do not have access to private transport [12]. The NRPTP focuses on increasing bus patronage and increasing public transport market share. The first plan was approved in 2010. It covered a 3-year period, 2010 to 2012, and was granted an implementation budget of US$ 500 million [46]. The plan was extended and amended in 2012, and was granted US$666 million to cover a 4-year period (2013-2016) [47]. A 4-year period (2017-2020) extension plan, which has been proposed by the MOTC, is currently under review [48].

3.3.1. NRPTP strategies and implementation process

Under the two granted periods (2010-2016), the NRPTP is implemented year by year with an annual budget of about US$ 166 million [12, 13].

The NRPTP budget comes from the Directorate General of Highways (DGH). Funding is distributed to local authorities through a bidding process. The local authorities produce annual road public transport proposals, applying to Directorate General of Highways (DGH) for NRPTP subsidy. The spending of the NRPTP budget is regulated so that recurrent expense such as subsidies to provide fare discounts cannot exceed 50% of capital expense such as public transport infrastructure refurbishment and introduction of new buses [49]. Thus this ensures a minimum of two thirds of the NRPTP budget is spent on capital investment.

The DGH evaluates the annual road public transport proposals and draws up a NRPTP budget allocation plan, which is presented to the MOTC for approval. The local road public transport proposals are essentially bidding documents, submitted to central government, which set out the local authorities' plans for public transport in their area and how much money is requested from central government to help implement these [50]. At the beginning of each new year, the DGH announces its NRPTP guidance to the local authorities. This guidance contains the NRPTP strategies, a list of major projects to be subsidized through the NRPTP, the rules for initiating annual local road public transport proposals, and the required contents of the annual local road public transport proposals [51]. But the NRPTP guidance did not disclose the key objectives of raising bus patronage and public transport market share [51].

The NRPTP guidance has, to date, included four key strategies: 1) creating 'top-notch' cities and counties, 2) infrastructure refurbishment, 3) protection of basic mobility rights, and 4) provision of incentives for raising bus patronage [51].

The 'top-notch' strategy involves the implementation of effective projects in those cities and counties with a high potential for increasing public transport accessibility and patronage [52]. High potential cities/counties are identified as those with a high population density (above the average of approximately 650 persons/km^2) but with a low public transport market share (lower than the average of 13.9% in 2010) (see Figure 4). The high potential cities/counties include Chiayi City, Taichung City, Hsinchu City, Taoyuan City, Changhua County, Kaohsiung City and Tainan City. These 'top-notch' high potential cities/counties would be offered help and advice to draw up their annual road public transport proposals [52].

The aim of the second strategy - infrastructure refurbishment - was to update the bus system infrastructure, and hence to improve the public image of the bus systems. Projects under this strategy include: transport smart card systems integration, installing bus real time information systems, introducing low floor buses, and speeding up the replacement of old buses [53].

The third strategy - basic mobility rights protection - was mainly focused on non-commercial rural bus services. The projects approved under this strategy included sustaining rural services by offering sufficient subsidy to cover operational deficits, and subsidizing the construction of bus shelters in rural areas [53].

The fourth strategy – provision of incentives for raising bus patronage – is a new strategy, which was introduced in the NRPTP guidance in 2014 [51], to encourage local authorities to raise bus patronage numbers. Under this programme, central government set up local authority targets for increasing annual bus patronage which rise each year [54]. A proportion of the NRPTP subsidy budget is reserved for distribution to those local authorities whose bus patronage numbers exceed these targets.

The rules for initiating annual road public transport proposals in the NRPTP guidance listed two important requirements that local authorities need to comply with [51]. Firstly, local authority should provide match funding, which is at least 10% of the total budget need in the annual road public transport proposal. Secondly, local authorities should propose annual performance indicators. However, there is no performance monitoring mechanism written into the NRPTP guidance [51].

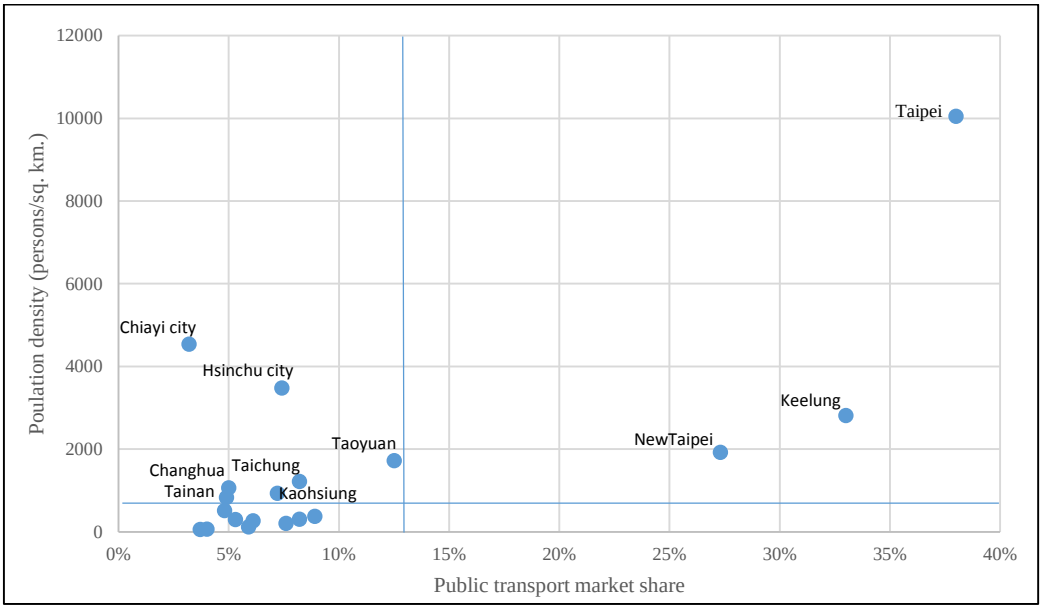

Figure 4 Population density and public transport market share (Source: [14, 55])

3.3.2. Stakeholders in NRPTP (National Road Public Transport Plan) Implementation

As shown in Figure 3, the main bodies for NRPTP implementation are the Directorate General of Highways (DGH) and the city/county governments (local authorities). Other stakeholders include MOTC, Institute of Transportation (IOT), NRPTP office, bus companies, academic institutions, transport consultant companies, and the general public.

Vertical intergovernmental relationships exist between MOTC and Directorate General of Highways (DGH), and MOTC and Institute of Transportation (IOT) [56]. DGH and IOT are both subordinated to the Ministry of Transportation and Communications (MOTC) [56]. MOTC is the formulator and decision-maker for NRPTP policy and budget allocation. DGH is responsible for motor vehicles administration and the management of the intercity bus service [57]. Hence, DGH is the NRPTP implementing agency in central government. IOT is responsible for studying transport policies and offering advice to MOTC [58]. Hence, the IOT provides consultant and research & development functions to the MOTC for NRPTP implementation. A horizontal intergovernmental relationship exists between DGH and IOT [56], which means DGH can request IOT's help or advice for NRPTP implementation.

The NRPTP office, which is a quango, was set up specifically to help the DGH with NRPTP implementation. DGH has periodically contracted academic institutions and transport consultancy firms to supply staff to the NRPTP office to help deal with NRPTP administration. Some academic institutions and transport consultancy companies have participated in the NRPTP through contracts with the local authorities and central government to give planning and consultancy services.

Regulatory relationships exist between the governments (central and local) and bus companies [59]. Bus companies are regulated either by local authorities or by DGH depending on the type of bus route [59]. City bus routes, which operate within a specific city or county administrative boundary, are regulated and licensed to operate by local authorities [59]. Intercity bus routes, which operate across city and county boundary, are regulated and licensed to operate by DGH [59].

The general public is the target group of NRPTP implementation from a customer-oriented perspective. The aim of NRPTP implementation is to attract the public to switch their mode choice towards public transport, especially bus [12, 13].

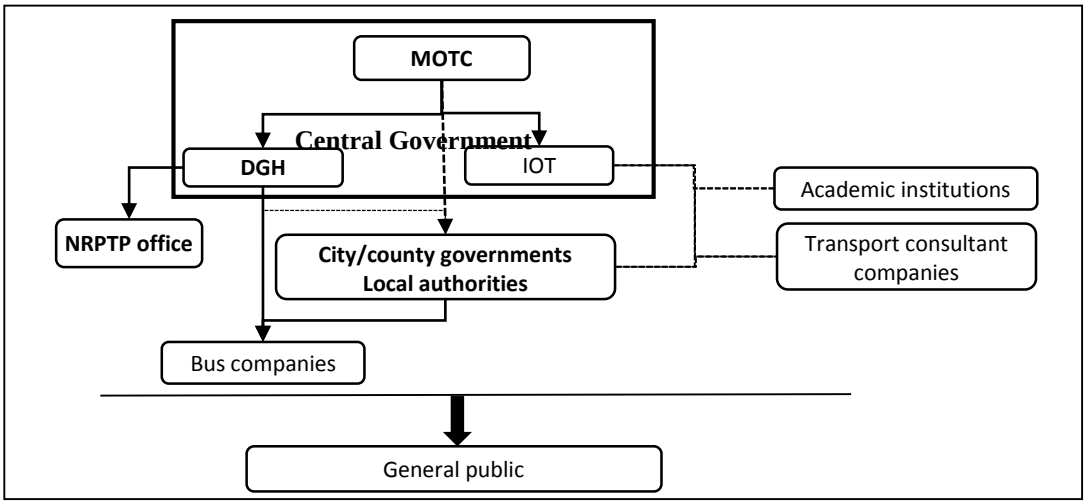

Figure 3 Stakeholders in NRPTP implementation

3.4. Key NRPTP implementation outcomes

Positive change has occurred in the public transport market in Taiwan since NRPTP implementation began in 2010 despite the key objectives not having been attained. In terms of infrastructure, the percentage of low floor buses to total buses in Taiwan increased sharply to 47% in 2015 from just 7% in 2009 [48]. Also, 3 different smart card systems, which are issued by three different companies and operate in three different areas, have been integrated through a multi-card validator [53, 60-64]. The integrated multi-card validators have also been extended from the bus system to the metro, intercity rail and high-speed rail systems. This means that passengers can now use any one of the three types of smart card when travelling across the whole of Taiwan. One hundred and eighteen new bus routes have been created and 492 new buses have been added to the fleet, expanding bus networks all over Taiwan Island [53, 60-64]. This has greatly improved access to and accessibility of the bus systems in Taiwan [48]. In addition, 30 new local bus terminals has been finished or are under construction [53, 60-64].

As for NRPTP budget allocation, most of the NRPTP resources are invested in key cities/counties under the 'top-notch' strategy. As can been seen in Figure 5, Taichung city, Tainan city, Kaohsiung city, Hsinchu city, and Chiayi city, which are the main cities/counties identified as having high population density and low public transport market share, have been allocated a higher percentage of NRPTP budget between 2010 and 2015 than would be expected given the proportion of population located in these cities [53, 60-64]. This means that the resources allocation has followed the strategies been set up in NRPTP.

As discussed in section 1, the public transport market share for the 19 cities/counties has followed an upward trend over the five years (2010-2014) of NRPTP implementation (Figure 6). Taichung city was distributed the largest proportion of the NRPTP budget (28.6%) (Figure 5), and the public transport market share for Taichung city has steadily risen to 10% in 2014 from 6% in 2009 (Figure 6) [9, 14-18]. Likewise, Kaohsiung city was distributed 17.1% of the NRPTP budget and here the public transport market share has increased to 8.2% in 2014 from 5.7% in 2009 [9, 14-18].

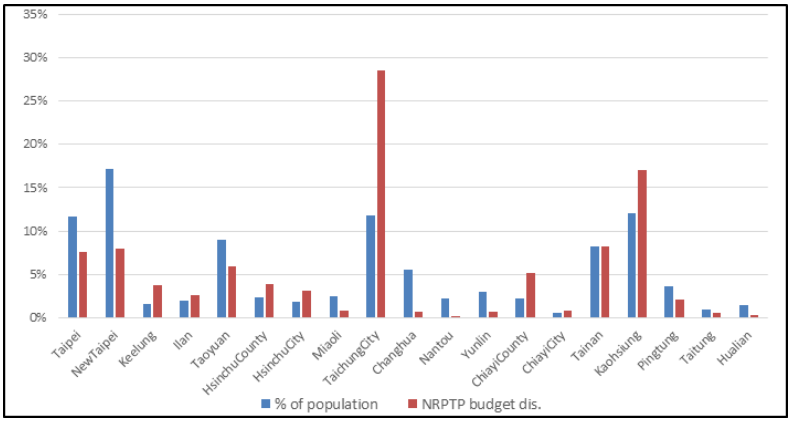

Figure 5 Budget and population distribution (Data source: [53, 60-64])

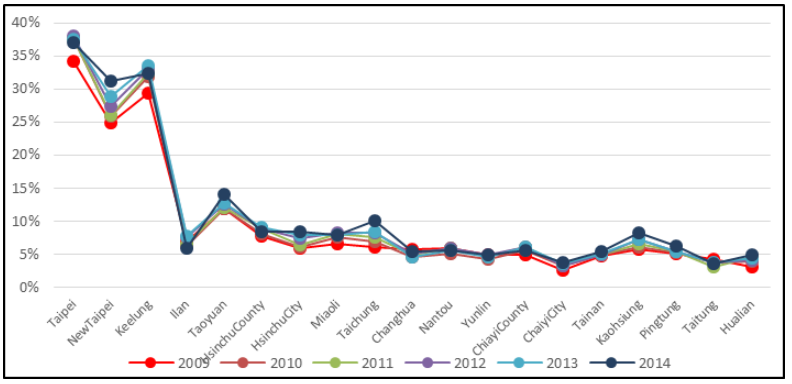

Figure 6 Public transport market share between 2009 and 2014 (Data source [9, 14-18])

4. Methodology

In order to understand the policy performance after the NRPTP was implemented, thirteen in-depth interviews were conducted with NRPTP stakeholders. These covered nearly all the stakeholders involved in NRPTP policy implementation including central government, local authorities, NRPTP office, bus companies and academic institutions (see Table 2). The purpose of the interviews was to explore opinions on NRPTP policy implementation and the factors contributing to its successes and failures. The interviewees in central government include staff in the MOTC and DGH. The interviewees in the local authorities include 1 from a city/county with high population density and high public transport market share, 3 from cities with high population density and low public transport market share, and 2 from low cities/counties with a population density and low public transport market share (Table 2). Three high-ranking staff from three different bus companies, which operate bus routes in three different areas in Taiwan, were interviewed. All the interviewees had been employed in their job related to the NRPTP for at least one year. Some of them have had their job connected to the NRPTP since the plan started in 2010. In addition, some of the interviewees have work experience both in central government and at local authority level.

Table 2 General information about the interviewees

Code	Features	Role in NRPTP implementation
CG1	MOTC, Central government	Policy maker , sets up policy guidance
CG2	DGH, Central government	Implements policy guidance and determines budget allocation
LA1	Local authorities, high population density and high public transport market share local authority	Local Implementing agency
LA2	Local authorities, high population density and low public transport market share local authority	Local Implementing agency

LA3	Local authorities, high population density and low public transport market share local authority	Local Implementing agency
LA4	Local authorities, high population density and low public transport market share local authority	Local Implementing agency
LA5	Local authorities, low population density and low public transport market share local authority	Local Implementing agency
LA6	Local authorities, low population density and low public transport market share local authority	Local Implementing agency
AU1	NRPTP office,	Assists DGH and helps local authorities to initiate projects
AU2	Academic institution,	Government consultant
AU3	Bus company, operator	Frontline implementing agency
AU4	Bus company, operator	Frontline implementing agency
AU5	Bus company, operator	Frontline implementing agency

The interviews were semi-structured. There were 6 questions, which were developed from the policy implementation method and model in section 2, in the question guide (Figure 7). Not all participants were asked all 6 questions; follow up questions were included to extract further information as necessary. The interview guide aimed to elicit information on policy implementation method and factors. The connection between main topics, as discussed in section 2, and the question guide is as shown in Figure 7. Most of the questions were covered by two or three topics because policy implementation is a continuous process related to all the topics and their interactions [65]. For example, the question of 'can you tell me what you understand the key NRPTP objectives to be' was related to policy objectives setting and if central government communicated the objectives to the stakeholders well.

The interviews took place in January and February 2016. Interviews lasted from 30 minutes to an hour and all the interviews used online calls. The interviews were audio recorded, transcribed and analysed using thematic content analysis to categorise the main themes such as policy objectives, policy resources, implementation method, organization communication, characteristics of implementing agencies and implementer's attitudes, and also reoccurring themes such as outcomes monitoring, implementation mechanism, and mayoral commitments from the interviews.

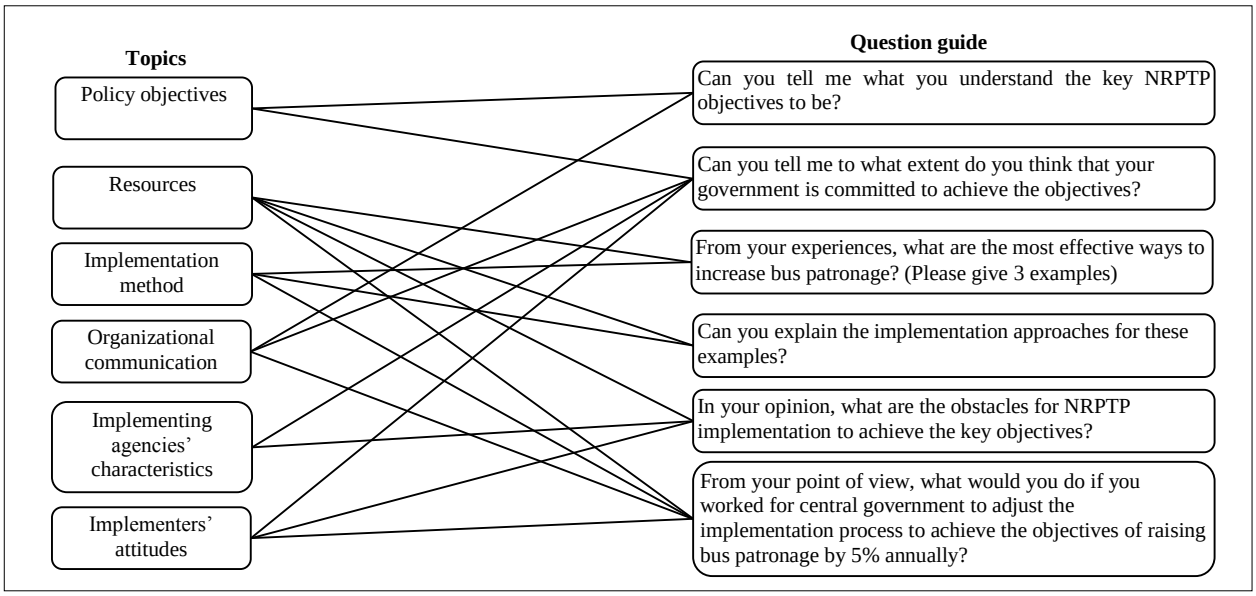

Figure 7 Relations between main topics and question guide

5. Analysis

By and large, interviewees felt that the six years of NRPTP implementation had made two major contributions. First, NRPTP policy implementation has raised some of the local authorities' awareness of and attention to local bus services. Second, NRPTP policy implementation has restored the general public's and bus operators' belief that public transport is in the mainstream of Taiwanese transport policy. However, some problems with the policy implementation have made it difficult for the key objectives to be met.

5.1. Consensus on policy objectives

Most of the implementers in local authorities and bus companies did not have a clear understanding of the objectives of the NRPTP, although they were aware of part of its content. Some of them knew about the objective of increasing public transport patronage but did not know exactly the size of the desired increase. Some listed the goals of particular programmes in local road public transport proposals, as NRPTP objectives, such as maintaining rural bus services, introducing low floor buses, and speeding up the rate of old bus replacement.

LA1: "NRPTP's objectives are to improve rural bus service, introducing green buses…"

LA6: "NRPTP's objectives are to subsidize specific types of public transport projects under central government's guidance…, also to encourage local government to dedicate resources to public transport."

There was a lack of a consensus about attaining key objectives of the NRPTP. Most of the local authorities did not think that they could raise bus patronage by 5% every year. The reason which was most frequently mentioned by the participants as to why the objectives cannot be achieved is because the cities/counties have not had local road public transport plans. Some of the local authorities mentioned that they initiated annual road public transport proposals routinely without assessing their transport needs and whether the proposed programmes can increase bus patronage or not.

LA2: "Raising annual public transport patronage by 5% have not been our goal. We [City government] *do not have a local transport policy and public transport plan…the annual local road public transport proposal was initiated randomly without plan or vision."*

LA6: "We have not thought about the objective of increasing bus patronage by 5% per year….We will wait until we get a longer-term local public transport plan. Then, follow the plan to increase bus patronage gradually."

5.2. Implementation method

Participants felt that implementing programmes using a bottom-up implementation method was a more effective way to increase bus patronage numbers. Frequent answers about which programmes were more effective at raising bus patronage included the introduction of new bus routes or networks, introduction of express bus routes, offering bus fare discounts, and increasing bus frequencies. These programmes tend to be implemented in a more bottom-up method because local authorities have more knowledge about local public transport needs. This indicates that central government may need to loosen NRPTP guidance to allow local authorities to implement more adaptive road public transport programmes to raise bus patronage numbers.

LA3: "Free bus service, bus network adjustment and creating arterial bus routes, creating express bus routes are the three effective ways to increase bus patronage"

LA4:"The implementation method should use bottom-up, but central government needs to motoring proposals and outcomes."

5.3. Outcomes monitoring and implementation mechanism

Some respondents from local authorities with job experience in central government expressed concerns that, so far, there is no monitoring mechanism to check if local authorities reach their annual goals at the end of year. The annual local road public transport proposals in consecutive years seem independent and discontinuous. There is no merit attached to last year's implementation outcomes. Each year, the NRPTP implementation process starts again with no reference to the last.

LA1: "Without a longer-term plan approved, when this year's subsidy has been implemented by local government, then it [this year's proposal] *is finished…"*

Several participants discussed a need to change the NRPTP implementation mechanism, suggesting that the implementation mechanism should require local authorities to submit longer-term (three or four-year) road public transport proposals and to strengthen their performance management. In addition, proposals should include annual action programmes and objectives. Central government would then approve the proposals and promise the requested subsidization for the 3-4 year period during which the following year's subsidization would be subject to previous year's outcomes. Then, central government would check whether the intended implementation outcomes have been attained year on year. If the previous year's outcomes have not met the objectives, central government may reduce this year's subsidization or even suspend the proposal.

LA1: "…for proposal [local road public transport proposal] *approval, the proposal should be longer than one year…" "If a 4-year proposal is approved, it is easier to check performance or whether the objectives have been attain or not."*

LA3: "There is a big problem with the implementation mechanism now…if the implementation mechanism is changed and local government are asked to produce a four-year proposal; there should be clear programmes and objectives for each year. Central government can approve a four-year proposal. The proposal and implementation outcomes can be tracked"

5.4. Characteristics of implementing agencies

Insufficient implementing capacity and skilled street-level-bureaucrats to produce and implement the annual local road public transport proposals were seen as major obstacles for NRPTP implementation. Some of the cities/counties still do not have a specific organization to deal with transport. This is viewed as resulting in some local governments not being able to keep transport expertise. In addition, there is considered to be too few (just one or two) staff in many local authorities to cope with the regulation of local bus services.

LA6: "…lack of manpower (only one staff) limited the capacity to implement the NRPTP…"

AU1: "The problem we faced every year, the quality of the annual local road public transport proposals initiated by the local governments were not good enough, and also the total amount bid for NRPTP subsidy from local authorities is the same or even less than the NRPTP budget. So, it was difficult to choose good projects from them. …"

AU2: "…the county lacks the ability to produce a proposal [annual road public transport proposal]*, another county did not accept help from our team to draft their proposal because they lack manpower to execute it…"*

5.5. Attitudes of implementers

Several participants expressed the problem that some cities/counties' willingness to produce a needed and good annual road public transport proposal is quite low. The street-level-bureaucrats are the implementers of the budget which they get from the NRPTP. Implementing the programmes included in their annual road public transport proposal could increase the work loading of these street-level-bureaucrats.

LA6: "…considering our implementation capacity, even if the central government would like to allocate more budget to us, we cannot execute it (NRPTP budget)."

AU1: "…there is only one member responsible for this project (NRPTP)…unwilling to do it, so the quality of the proposal (annual road public transport proposal) is poor."

5.6. Mayoral commitments

Lack of mayoral concern and commitment for road public transport is an obstacle for NRPTP implementation in some local authorities. Although most of the mayors have realized the importance of developing local bus services after six years of NRPTP implementation, mayoral commitment and support to dedicating more resources (manpower and finance) to the NRPTP still needs to rise.

CG2: "…counties such as..., have not paid attention to public transport…"

LA6: "The first support we need is from our mayor, then we can get more resources (in our government) to progress bus service…"

Several participants suggested that there is a need to exert more pressure on local leaders (mayors and directors of local transport authorities) to dedicate more local resources to bus services. The pressure may come from disclosing to the public an evaluation of public transport services for each local authority.

AU1: "We hope central government can set up local public transport indicators and survey cities/counties' public transport development, and then include these in the cities/counties' annual wellbeing evaluation, giving some pressure to local governments."

5.7. Resources

The inflexibility of NRPTP budget spending is associated with the resources issue. The inflexibility of NRPTP budget spending is divided into two aspects. First, NRPTP subsidy requires match fund from local governments, which is not affordable for some governments due to poor financial conditions.

LA5: "I asked our county government to provide the match funding for subsidizing non-commercial bus routes. But the county government did not agree."

Second, the ratio of capital expense and current expense in NRPTP budget is limited to 2 to 1, which means that expenditure within the NRPTP for recurrent items such as fare discount incentives, cannot exceed one third of the total budget.

LA3: "….There is a need to relax the limitation of the ratio of capital expense and current expense."

6. Policy Implementation Recommendations Conclusions

The next 4 year period of the NRPTP will begin in 2017. Reviewing the problems faced over the past six years' NRPTP implementation and identifying possible future implementation directions will hopefully make the next period of policy implementation more successful. Table 3 summarise the main themes from interviews.

Table 3 Summary of the main themes in analysis

Main themes	Description
Policy objectives	• The implementing agencies did not clearly understand the objectives; • Some of the implementing agencies did not think they can attain the objectives.
Implementation method	• The most effective ways to increase bus patronage included a bottom-up approach.
Outcomes monitoring and implementation mechanism	• It is difficult to monitor implementation outcomes with a year by year bidding process; • This might be solved by having longer-term local public transport proposals.
Characteristics of the implementing agencies	• There is insufficient implementation capacity in local authorities; • A lack of skilled street-level-bureaucrats was a major obstacle for local NRPTP implementation.
Attitudes of implementers	• Some cities/counties lacked a willingness to implement the NRPTP.
Mayoral commitments	• Some local mayors were not committed to local bus services development.
Resources	• The NRPTP budget requires local governments to find match funding, which can be difficult; • The ratio of capital expense and current expense constraint within NRPTP budget limits what can be achieved
Regulatory body for intercity bus routes	• There was no consensus in relation to the devolvement of the regulatory power for intercity bus routes from central government (DGH) to local governments.

There are five important conclusions from this study. Firstly, building a consensus on the NRPTP objectives among central government and local authorities should be an imperative task. Some local authorities not only did not clearly understand the NRPTP key objective of raising bus patronage numbers but also did not believe they can achieve the objective – raising bus patronage by 5% annually. Central government should improve intergovernmental communication with local authorities and bus companies to make sure that they all keep the objectives in mind and desire to achieve them.

Secondly, mayoral commitment and provision of supporting resources to local transport authorities are critical for the NRPTP implementation. Evaluating local public transport services and disclosing the results to the public could be an approach to increase mayoral commitment to public transport.

Thirdly, the implementation mechanism should be reformed so that the local public transport proposal and bidding process is done once every four years and covers a four year period(for example 2017-2020). In addition, a performance monitoring mechanism should be built in. Once the 4-year proposal is approved, a 4-year subsidy should be simultaneously promised to the local authority. This can help local authorities to make longer-term public transport plans and would ensure continuity in consecutive years. In addition, the central government can then effectively monitor the progress of the NRPTP implementation.

Fourthly, the NRPTP guidance should clearly disclose the objectives of the NRPTP and ask local authorities to propose clear performance indicators which link to the NRPTP objectives. The content of NRPTP guidance now only describes how to initiate the annual local road public transport proposal and lists the projects included in the NRPTP subsidy. The NRPTP guidance may need to be revised to introduce the objectives of NRPTP, announce the criteria for approving local proposals, and require local authorities to set up performance indicators.

Finally, adequate and supporting resources for local authorities are important. Lack of manpower is the most frequent problem faced by local authorities, affecting the attitudes of the NRPTP implementers. There is a disparate capacity within local authorities to deal with transport business. Most of the high-density cities/counties have local transport authorities while most low-density cities/counties do not (see Table 2). DGH could allocate some of the NRPTP budget to help local authorities, especially those who do not have a local transport authority, to set up a local NRPTP implementation office by recruiting some transport expertise. Providing sufficient manpower to local authorities may improve their attitudes towards NRPTP implementation. In terms of subsidy, the match funding requirement and the spending limitation with regards to the ratio of capital expenditure to current expenditure should not be obstacles for NRPTP implementation. Central government should remove these obstacles and help local authorities to implement all the measures which can raise bus patronage.

A limitation of this study is that there are only a small number of participants although the participants have covered nearly all types of stakeholders in NRPTP policy implementation. Future work could expand the number of participants to include views of the general public, including both bus users and non-bus users.

Acknowledgement

Thanks go to our interviewees from central government, city/county governments in Taiwan, bus companies and academic institutions. We appreciate their input. Thanks are also given to the Taiwanese Executive Yuan (central government) for funding Chien-Pang Liu's PhD scholarship.

References

1. General Accounting Office, U.S., *Mass Transit: Bus Rapid Transit Shows Promise*, in *MASS TRANSIT*2001: US.
2. Commission for Integrated Transport, U., *Affordable Mass Transit*, 2005: UK.
3. Litman, T., *Evaluating public transit benefits and costs.* Victoria Transport Policy Institute, 2011. **65**.
4. Currie, G. and I. Wallis, *Effective ways to grow urban bus markets – a synthesis of evidence.* Journal of Transport Geography, 2008. **16**(6): p. 419-429.
5. Social Exclusion Unit, S., *Making the connections: transport and social exclusion*, in *Social Exclusion Unit, The Stationery Office, London*2003, Social Exclusion Unit: London.
6. Currie, G. and J. Rose, *Growing patronage–Challenges and what has been found to work.* Research in Transportation Economics, 2008. **22**(1): p. 5-11.
7. Lan, L.W., M.-T. Wang, and A.Y. Kuo, *Development and deployment of public transport policy and planning in Taiwan.* Transportation, 2006. **33**(2): p. 153-170.
8. Ministry Of Transportation and Communications, R.O.C. *Statistics Inquiry*. 2014 29/07/2014 [cited 2014 29/07]; Available from: http://stat.motc.gov.tw/mocdb/stmain.jsp?sys=100&funid=emenu.
9. Department of Statistics, M.O.T.a.C., *2009 National Travel Survey*, M.o.T.a.C. Department of statistics, Editor 2010, Ministry of Transportation and Communications: Taipei, Taiwan.
10. Institute of Transportation, T., *Energy consumption and greenhouse gas emissions of the transport sector integrated information platform*, 2011, Institute of Transportation, Taiwan: Taiwan.
11. Ministry Of Transportation and Communications, R.O.C., *2012 White Paper on Transport Policy - Green Transport*, 2012, Ministry of TRansportation and Communications: Taiwan.
12. Ministry Of Transportation and Communications, R.O.C., *2010-2012 National Road Public Transport Plan (NRPTP)*, M.O.T.a. Communications, Editor 2010: Taipei, Taiwan. p. 57.
13. Ministry Of Transportation and Communications, R.O.C., *2013-2016 National Road Public Transport Plan (NRPTP)*, 2012, Ministry Of Transportation and Communications: Taipei, Taiwan.
14. Department of Statistics, M.O.T.a.C., *2010 National Travel Survey*, D.o. Statistics, Editor 2011, Ministry Of Transportation and Communications: Taipei, Taiwan.
15. Department Of Statistics, M.O.T.a.C., *2011 National Travel Survey*, D.O. Statistics, Editor 2012, Ministry Of Transportation and Communications: Taipei, Taiwan.
16. Department Of Statistics, M.O.T.a.C., *2013 National Travel Survey*, D.o. Statistics, Editor 2014, Ministry Of Transportation and Communicaitons: Taipei, Taiwan.
17. Department Of Statistics, M.O.T.a.C., *2014 National Travel Survey*, D.o. Statistics, Editor 2015, Ministry Of Transportation and Communications: Taipei, Taiwan.
18. Department Of Statistics, M.O.T.a.C., *2012 National Travel Survey*, D.o. Statistics, Editor 2013, Ministry Of Transportation and Communications: Taipei, Taiwan.
19. Schofield, J., *Time for a revival? Public policy implementation: a review of the literature and an agenda for future research.* International journal of management reviews, 2001. **3**(3): p. 245-263.
20. Sabatier, P. and D. Mazmanian, *The implementation of public policy: A framework of analysis**. Policy studies journal, 1980. **8**(4): p. 538-560.
21. Pulzl, H. and O. Treib, *'Implementing Public Policy' in Handbook of public policy analysis: Theory, politics, and methods*

2006, New York, USA: CRC Press. 89-106.

22. Cerna, L., *The nature of policy change and implementation: a review of different theoretical approaches*, in *ILE*, L. Cerna, Editor 2013.
23. Sabatier, P.A., *Top-down and bottom-up approaches to implementation research: a critical analysis and suggested synthesis.* Journal of public policy, 1986. **6**(01): p. 21-48.
24. Matland, R.E., *Synthesizing the implementation literature: The ambiguity-conflict model of policy implementation.* Journal of public administration research and theory, 1995. **5**(2): p. 145-174.
25. O'Toole, L.J., *Research on policy implementation: Assessment and prospects.* Journal of public administration research and theory, 2000. **10**(2): p. 263-288.
26. Fiorino, D.J., *Strategies for regulatory reform: Forward compared to backward mapping.* Policy Studies Journal, 1997. **25**(2): p. 249-265.
27. Winter, S.C., *Implementation perspectives: Status and reconsideration*, in *Handbook of public administration*, J.P. B. Guy Peters, Editor. 2009, SAGE: Los Angeles, London, New Delhi, Singapore, Washington DC. p. 131-141.

28. Pressman, J.L. and A.B. Wildavsky, *Implementation: how great expectations in Washington are dashed in Oakland: or, why it's amazing that federal programs work at all, this being a saga of the Economic Development Administration as told by two sympathetic observers who seek to build morals on a foundation of ruined hopes*. 1984: Univ of California Press.
29. Elmore, R.F., *Backward mapping: Implementation research and policy decisions.* Political science quarterly, 1979: p. 601-616.
30. Sabatier, P., *From policy implementation to policy change: A personal odyssey*, in *Reform and change in higher education: Analysing Policy Implementation*. 2005, Springer: New York. p. 17-34.
31. Gornitzka, Å., S. Kyvik, and B. Stensaker, *Implementation analysis in higher education*, in *Reform and change in higher education*. 2005, Springer. p. 35-56.
32. Van Meter, D.S. and C.E. Van Horn, *The policy implementation process a conceptual framework.* Administration & Society, 1975. **6**(4): p. 445-488.
33. Winter, S.C., *PART 5 Introduction: Implementation in "Handbook of public administration"*. 2003, Sage: London, UK.
34. O'Toole Jr, L.J., *Interorganizational relations in implementation*, in *Handbook of public administration*, J.P. B. Guy Peters, Editor. 2009, SAGE: Los Angeles, London, New Dehli, Singapore, Washington DC. p. 234-244.
35. Fraser, E.D., et al., *Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management.* Journal of environmental management, 2006. **78**(2): p. 114-127.
36. Lutsey, N. and D. Sperling, *America's bottom-up climate change mitigation policy.* Energy policy, 2008. **36**(2): p. 673-685.
37. Schreurs, M.A., *From the bottom up local and subnational climate change politics.* The Journal of Environment & Development, 2008. **17**(4): p. 343-355.
38. Lumsdon, L. and R. Tolley, *The National Cycle Strategy in the UK: to what extent have local authorities adopted its model strategy approach?* Journal of Transport Geography, 2001. **9**(4): p. 293-301.
39. May, A.D., A.F. Jopson, and B. Matthews, *Research challenges in urban transport policy.* Transport Policy, 2003. **10**(3): p. 157-164.
40. Gaffron, P., *The implementation of walking and cycling policies in British local authorities.* Transport policy, 2003. **10**(3): p. 235-244.
41. Taiwan Ministry of the Interior, D.o.s. *Statistics of interior affairs*. 2015 [cited 2016 16/02]; Available from: http://statis.moi.gov.tw/micst/stmain.jsp?sys=100.
42. Directorate-General of Budget Accounting and Statistics, E.Y., *Total Central Government Budget Report*, D.-G.o.B.A.a. Statistics, Editor 2005, Directorate-General of Budget Accounting and Statistics: Taiwan.
43. Lan, L., M.-T. Wang, and A. Kuo, *Development and Deployment of Public Transport Policy and Planning in Taiwan*. Transportation, 2006. **33**(2): p. 153-170.
44. Ministry Of Transportation and Communications, R.O.C., *2012 White Paper on Transportation Policy - Road Public Transport*, R.O.C. Ministry Of Transportation and Communications, Editor 2012, Ministry Of Transportation and Communications, Republic Of China: Taipei, Taiwan. p. 59.
45. The Control Yuan, R.o.C.T., *The Special Report for the Problem Raised by the Stop Operation of Rural Bus Routes*, 2010, The Control Yuan, Republic of China (Taiwan): Taipei, Taiwan. p. 62.
46. National Development Council, E.Y. *2010-2012 National Road Public Transport Plan*. 2009 [cited 2016 30/03]; Available from: http://www.ndc.gov.tw/News_Content.aspx?n=C90548F2DB23E8B9&sms=AB593F5AE64A02BE&s=7F3925EC4DAE558D.
47. Executive Yuan, R.O.C. *2013-2016 National Road Public Transport Plan (NRPTP)*. 2012 [cited 2015 24/05]; Available from: http://www.ey.gov.tw/News_Content4.aspx?n=3D06E532B0D8316C&sms=4ACFA38B877F185F&s=4BE9EE42EBF7F960.
48. Directorate General of Highways, T. *National Road Public Transport Conference 2016*. 2016 [cited 2016 31/03]; Available from: http://www.thb.gov.tw/sites/ch/modules/news/news_details?node=eeb33aa6-58a1-4d5d-b6aa-28dd4d5270b0&id=d4a42ad5-977f-4b37-ba59-a1e7a05fc351.
49. National Development Council, E.Y., *Main points for government public works plan*, N.D. Council, Editor 2015.
50. Ministry of Transportation and Communications, R.O.C., *Approved Hsinchu City's 2011 Road Public Transport Proposal*, M.o.T.a. Communications, Editor 2011.
51. Directorate General of Highways, T., *2014 National Road Public Transport Plan (NRPTP) Guidance*, D.G.o. Highways, Editor 2014.
52. Road Public Transport Plan Office, N.O., *Implementation strategies for Road Public Transport Plan [PowerPoint slides]*, T. Directorate General of Highways, Editor 2011.

53. Ministry Of Transportation and Communications, R.O.C., *Report of 2012 Road Public Transport Plan*, 2012, Ministry Of Transportation and Communications, Republic Of China: Taipei, Taiwan.
54. Directorate General of Highways, T., *2015 Rules of provision of incentives for raising bus patronage* D.G.o. Highways, Editor 2015.
55. Ministry of the Interior, R.O.C. *Socio-economic database*. 2014 [cited 2013 24/04]; Available from: http://segis.moi.gov.tw/STAT/Web/Portal/STAT_PortalHome.aspx.
56. Ministry of Transportation and Communications, R.o.C. *Organization of Ministry of Transportation and Communications*. 2016 [cited 2016 29/03]; Available from: http://www.motc.gov.tw/en/home.jsp?id=315&parentpath=0,150.
57. Directorate General of Highways, T. *The major responsibility for Directorate General of Highways*. 2016 [cited 2016 29/03]; Available from: http://www.thb.gov.tw/sites/en/.
58. Institute of Transportation, T. *Organization and function of Institute of Transportation*. 2016 [cited 2016 29/03]; Available from: http://www.iot.gov.tw/ct.asp?xItem=106043&CtNode=87&mp=2.
59. Ministry of Justice, R.O.C. *Laws and Regulations Database of The Republic Of China-Highway Act*. 2016 [cited 2016 29/03]; Available from: http://law.moj.gov.tw/Eng/LawClass/LawContent.aspx?PCODE=K0040001.
60. Ministry Of Transportation and Communications, R.O.C., *Report of 2010 Road Public Transport Plan*, 2010, Ministry Of Transportation and Communications, Republic Of China: Taipei, Taiwan.
61. Ministry Of Transportation and Communications, R.O.C., *Report of 2011 Road Public Transport Plan*, 2011, Ministry Of Transportattion and Communications, Republic Of China: Taipei, Taiwan.
62. Ministry Of Transportation and Communications, R.O.C., *Report of 2013 Road Public Transport Plan*, 2013, Ministry Of Transportattion and Communications, Republic Of China: Taipei, Taiwan.
63. Ministry Of Transportation and Communications, R.O.C., *Report of 2014 Road Public Transport Plan*, 2014, Ministry Of Transportattion and Communications, Republic Of China: Taipei, Taiwan.
64. Ministry Of Transportation and Communications, R.O.C., *Report of 2015 Road Public Transport Plan*, 2015, Ministry Of Transportation and Communications, Republic Of China: Taipei, Taiwan.
65. McLaughlin, M.W., *Learning from experience: Lessons from policy implementation.* Educational evaluation and policy analysis, 1987. **9**(2): p. 171-178.