ELLIS

DEVELOPING SUSTAINABLE PUBLIC TRANSPORT
(Case Studies : Trans Jogja and Varmlandstrafik AB)

Service Science
Master Thesis

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Supervisor : Bo Enquist
            Samuel Petros Sebhatu
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ABSTRACT

The use of motor vehicles has a significant and growing impact on global climate change, the slow but steady increase in average world temperature commonly known as global warming. The governments from central to local are then positioned to address the problem caused by motor vehicle use and promote a more sustainable transportation system. By taking actions that minimize motor vehicle use, encourage public transport use by citizens and promote advanced vehicle technologies. Hopefully these actions could allow citizens access their needs and destinations without causing undue harm to the climate. This research aims at (1) identifying the sustainability of Trans Jogja service regarding existing value network system and stakeholder view; (2) observing what can be learned from Varmlandstrafik AB in terms of communicating with other stakeholders in the value network system for environmentally friendly activities and maintaining profit as well and (3) identifying how the existing service performance of Trans Jogja in term of sustainable service.

Learned from IKEA (a furniture company with a good model for sustainable service business) regarding Corporate Social Responsibility (CSR) and embedded principles, this research try to analyze that value network in terms of how the networks of stakeholders create value, CSR, stakeholder, and organization changes are closely related towards sustainability. And also by developing the indicator for sustainable transport to be sustainable public transport model, using SERVQUAL model this thesis try analyze whether the service is successfully delivered or already sustainable in both public transport. Varmlandstrafik AB as a case study be a comparative for Trans Jogja regarding sustainable public transport and sustainable service.

From the analysis it can be concluded that in overall components regarding sustainability, Trans Jogja have not fulfilled all sustainable public transport indicators for economic, social and environmental aspects. This was due to the lack of awareness towards CSR, the mind set of creating value between multiple stakeholders, and service, Trans Jogja service has not been obtaining sustainability. Based on the assessment from passengers and lesson learned from Varmlandstrafik AB, sustainability can be achieved if all the components of service are clearly regulated in the contract between PTA and the operator. Sustainability is also related to how communities in accessing their necessities to work, education, health, business, entertainment etc. Therefore all stakeholders or institutions involved in Trans Jogja operation should consider how to develop Trans Jogja so that it is integrated with other kinds of public transport and also how to develop the service for a long term necessities for mobility. The things can be learned from Varmlandstrafik AB is that the change or reform of public transport authorities is important in order to develop policies. The dialogues among multiple stakeholders aimed to create a change pressure in the Swedish Public Transport Industry due to the contribution of change pressure proves that the dialogues help a successful quality improvement.

Key Words : Sustainable development, sustainable transport, sustainable public transport, CSR, stakeholder view, value network.
CHAPTER I
INTRODUCTION

A. Background

The use of motor vehicles has a significant and growing impact on global climate change, the slow but steady increase in average world temperature commonly known as global warming. Global climate change stems from the “greenhouse” effect, the process by which certain gases in the atmosphere trap energy that arrives from the sun. Expanding economics and growing population throughout the world increase emissions of the greenhouse gases into the atmosphere. The use of transportation fuels made from fossil fuels, such as gasoline and diesel, result in large quantities of CO\(_2\) emissions. (ICLEI, 2001).

Unrestrained increase in motor vehicle also leads to traffic congestion. Congestion will increase negative impact to the environment due to the products of combustion engine such as particular matter (PM), sulphur dioxide (SO\(_2\)), carbon monoxide (CO), nitrogen dioxide (NO\(_2\)), nitrogen oxides (NO\(_x\)) and increase the noise level as well. Emission as (PM), (NO\(_2\)), volatile organic compound (VOC), and (CO) are particularly important from a health perspective, while emissions of (NO\(_x\)) and (SO\(_2\)) contribute to the acidification of buildings (Van Wee, 2007).

According to Miedema (2007), noise in residential areas may disturb communication, concentration, sleep, and cause negative emotional reactions.
Large scale environment problems occur as a result of traffic including climate change, carbon dioxide (CO₂) emissions, acidification of nature, agriculture, and the landscape, as well as large scale air pollution (Van Wae, 2007).

The governments from central to local are then positioned to address the problem caused by motor vehicle use and promote a more sustainable transportation system by taking actions that minimize motor vehicle use, encourage public transport use by citizens and promote advanced vehicle technologies. Hopefully these actions can allow citizens to access their needs and destinations without causing harm to the climate.

Concerning sustainable transportation and the initiatives to reduce the impact of climate change, nowadays many countries join in a Clean Development Mechanism (CDM) project to reduce or limit the emission. A CDM project must provide emission reductions that are additional to what would otherwise have occurred.

In accordance with CDM project Indonesia also commits to reducing emission and in order to reduce the emission from transportation, the Indonesian Government declared a President Decree (Perpres No.46 Tahun 2008 tentang Dewan Nasional Perubahan Iklim (DNPI)) concerning National Board on Climate Change which is a sort of national team focusing on efforts to overcome climate change. One of the objectives is to reduce emission from urban transport for friendly environmentally transport.
It is evident that Bus Rapid Transit (BRT) system in Bogota, TransMilenio, is the only public transport system registered for CDM with the United Nations Frameworks Convention on Climate Change (UNFCCC). Depart from this, the Indonesian government has been trying to develop this kind of sustainable public transport system that was first implemented in Jakarta which is known as TransJakarta followed by Trans Jogja in Jogjakarta city. However Trans Jogja is quite different from common BRT system due to the absence of bus lane in its corridor.

Thinking of sustainability, IKEA (furniture company) is a good role model for a sustainable service business, even though the context of public transport is quite different from IKEA context, but in more general terms much can be learned with help of Edvardsson and Enquist (2009) book. One of the principles for sustainable service business which is built upon lesson from IKEA is Corporate Social Responsibility (CSR). Based on Edvardsson (2005) CSR has to be understood as a responsiveness toll for value creation, and is linked to stakeholder view (Enquist; Johnson; and Skalen, 2006).

Sustainability also needs a dramatic changes in the organization’s performance against the economic, social, and environmental (triple) bottom lines (Elkington, 1998) and it is supported by the statement that sustainability also necessitates the transformation of mind set and commitment of the leadership and organizational performance including key stakeholders (Lazlo, 2003; Waddock and Bodwell, 2007). This research tries to analyze the value network in term of how the networks of stakeholders create value, CSR, stakeholder, and
organization changes work in Trans Jogja in terms of satisfying the current transport and mobility needs which minimize emissions detrimental to the local and global environment, and prevent needless fatalities, injuries, and congestion.

**B. Aim of This Research and Research Questions**

It is important to take account how to develop the Trans Jogja service in term of sustainable transport by creating value network system with other stakeholders for dialogues which encourage sustainable public transport and also improve the service. Based on the introduction above it can be raised the following research questions:

1. What is the practice of Sustainable Public Transport on Trans Jogja?

2. How can Dinas Perhubungan as the public transport authority of Trans Jogja and the stakeholders participate or communicate in environmentally friendly or green activities to ensure that all process is adequate while maintaining a profit?

3. How successful is the Trans Jogja in providing sustainable service?

The aim of this study is to understand and analyze sustainable public transport of Trans Jogja based on value network, stakeholder view, and cultural/organizational change.
C. Objective

The objectives of this thesis are

1. to identify the sustainability of Trans Jogja service regarding existing value network system and stakeholder view;
2. to observe what can be learned from Varmlandstrafik AB in terms of communicating with other stakeholders in the value network system for environmentally friendly activities and maintaining profit as well.
3. to identify the existing service performance of Trans Jogja in term of sustainable service.

D. Research Limitation

Based on the indicator of sustainable transportation recommended by the Transportation Research Board’s Sustainable Transportation Indicators Subcommittee, the writer tries to measure and describe the sustainability of Trans Jogja service and Varmlandstrafik AB in a qualitative way, merely for a comparative study of how this company delivers the service in term of sustainable public transport and how the value network system is done among stakeholders. This research also limits the analysis sustainability from the point of view of Trans Jogja’s passengers not for the whole community.
E. General Outline and Thesis Structure

This thesis has a general outline as described in figure 1.1 and contains introduction. Theoretical bases are used as the bases to formulate sustainable public transport, and then by using sustainable public transport model, this thesis tries analyze whether the service is successfully delivered or already sustainable in both companies. Finally it concludes all of the findings. This thesis general outline is composed in thesis structure as follows:

Chapter 1, this chapter consists of background of this research, aim of this research, research questions, the objectives of research, limitation, and methodology.

Chapter 2, the theoretical framework contains literature reviews which are relevant to use for the analysis.

Chapter 3, empirical study describes the existing condition of Trans Jogja and Varmlandstrafik AB concerning service system, value network system and stakeholder view.

Chapter 4, this chapter provides the analysis based on theoretical framework in chapter 2 compared to the existing condition presents in chapter 3.

Chapter 5, this is the conclusion answering all the research questions and recommending for further research.
Figure 1.1. General Outline
CHAPTER II
THEORETICAL BASE

It is reasonable to begin a volume on sustainability with some of the definitions of sustainability and sustainable transport that have appeared in the literature over the past 15 years or so. Before we do that, let us see if we can find some common grounds or a consensus as to the meaning of “sustainable.” We will all agree that if something is sustainable it is something that can be maintained or is something that endures. When we begin to use the word to modify certain nouns, such as development, or cities, or transport, we do little to make them clearer concepts. While the discussion that follows will focus primarily on sustainable transport, the inherent ambiguity or impreciseness applies in all cases (Black, 2010).

Sustainability also necessitates the transformation of mindset and commitment of the leadership and organizational performance including key stakeholders (Laszlo, 2003; Waddock and Bodwell, 2007).

A. Sustainable Development

According to Bruntland (1985), sustainability is defined as economic development that meets today’s generation needs without compromising the opportunity and ability for future generations.
There are so many definitions of sustainability, and the experts have been developing the term of sustainable development and sustainable transportation, but the experts increasingly agree that these should refer to a balance of economic, social, and environmental health. Then it can be concluded that sustainable public transport should be in accordance with sustainable development and sustainable transportation.

Sustainable development within a business can create value for customer, investors, and the environment. A sustainable business must meet customer needs while at the same time treating the environment well. To many, sustainable business is a synonymous with green business. In fact, the environment is only one aspect of sustainability. It takes much more than environmentally friendly practices for business to be truly sustainable.

A sustainable business is any organization that participates in environmentally friendly or green activities to ensure that all processes, products and manufacturing activities adequately address current environmental concern while maintaining a profit.

Figure 2.1 Scheme of Sustainable Development: at the Confluence of Three Constituent Parts, Adams, W.M (2006)
In accordance with sustainable development there are 8 (eight) international development goals that 192 United Nations member states have agreed to achieve by the year 2015 which is known as the Millennium Development Goals (MDGs), and Indonesia also participates in this initiative.

**B. Sustainable Transport and Sustainable Public Transport**

The term sustainable transport came into use as a logical follow on from sustainable development, and is used to describe modes of transport, and systems of transport planning, which are consistent with wider concern of sustainability.

Without major changes of sustainable development definition, this can be extended to sustainable transport which may be defined as transport that satisfies “the current transport and mobility needs without compromising the ability of future generations to meet these needs” (Black, 1996, p.151).

Schipper (1996) states that sustainable transport is transportation where the beneficiaries pay their full social costs, including those that would be paid by future generations.

Probably in an attempt to be more comprehensive, the Centre for Sustainable Transportation in Canada states that a sustainable transportation system is one that:

1. allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations;
2. is affordable, operates efficiently, offers a choice of transport mode, and supports a vibrant economy; and
3. limits emissions and waste within the planet’s ability to absorb them, minimizes consumption of nonrenewable resources, reuses and recycles its components, and minimizes the use of land and production of noise (Centre for Sustainable Transportation, 1998).

A sustainable transport system is one that provides transport and mobility with renewable fuels while minimizing emissions detrimental to the local and global environment, and preventing needless fatalities, injuries, and congestion (Black, 2010).

Public transport is integrated in transportation system. From the definition of sustainable transport, then it can be defined that sustainable public transport is a mode of transport with renewable fuels which minimize emissions detrimental to the local and global environment, and prevent needless fatalities, injuries, and congestion.

C. Value Network

According to Lusch, Vargo and Tanniru, (2009) a value network can be defined as a spontaneously sensing and responding spatial and temporal structure of largely loosely coupled value proposing social and economic actors interacting through institutions and technology to:

1. Co-produce service offerings
2. Exchange service offerings
3. Co-create value

In Sweden the public transport system in each county can be seen as a “value network” (Enquist, 1999; 2003). The public sector runs public transport through the Public Transport Authorities (PTAs) of each county that is responsible for and manages transport on roads and railway as well as public transport to and from the area. Transport is being outsourced to private operators. The business relationships between the PTAs and operators are regulated through contractual governance agreements. The owners of each county’s PTA are the county council and the county’s municipalities.

Figure 2.2 illustrates the relationships between four actors: the “Principal” (which is the owner of the PTA and is made up of the county’s political units), the “Public Transportation Authority or PTA” (which manages and has the responsibility for the transport system), the “Sources” (which are the private operators who are contracted to provide the services), and the “Citizens/customers” (among those are the system’s users) (Enquist, 1999). This model illustrates the level of consideration that the PTAs must give social, customer and corporate performance, i.e. key performance indicators should be formulated in reference to what creates value for customers as well as in relation to the sustainability criteria: the financial, social, and environmental perspectives (Koll framåt, 2007).
In line with the value network principle, in this research the writer tries to analyze the existing value network system in Trans Jogja based on the value network principle inspired by Enquist (1999) in terms of sustainable public transport.

D. Corporate Social Responsibility (CSR)

CSR can be understood as the voluntary integration of social and environmental concerns into business operations and interactions with stakeholders. CSR is mainly defined as concepts and strategies by which companies voluntarily integrate social and environmental concerns with their business operations and stakeholder interaction (Enquist et.al., 2006).

A sense of social and environmental responsibility stimulates lean production, lean consumption, energy conservation etc, and thus contributes to profitability in a long term perspective.

The most important CSR initiatives are backgrounds by three initiatives:

1. EU Green paper
CSR is important if the EU is “... to become the most competitive and
dynamic knowledge-based economy in the world, capable of sustainable
growth with more and better jobs and greater social cohesion” (COM,2001,p.366). The EU green paper supports the approaches based on
partnerships among stakeholders.

2. Global Reporting Initiative (GRI)

The GRI is a long-term, international process involving multiple stakeholders
for the development and the dissemination of globally-accepted guidelines for
sustainability reporting. Swedbank one of the Swedish bank was ranked best
in Sweden on 2002 and number three in the world on sustainability during
2003 due to the sustainability reports that comply with the international
guidelines of the GRI.

3. Global compact

A United Nations (UN) initiative, the “Global Compact”, was launched in
2000 to bring companies together with UN agencies, labour, and civil society
to support ten principles in the areas of human right, labour and the
environment, and anti corruption.

The public transport in Sweden in this case Varmlandstrafik AB through
PTA and other stakeholder have been trying to commit to three bottom line of
sustainability by implementing CSR initiatives in the public transport service. It
can be seen that CSR is also a tool for creating value contributed by the chain of
stakeholders.
E. Stakeholder

Stakeholder is any part that has interest in an organisation (Investor word, 2008). Freeman (1984) stated that there are five distinctive stakeholder typologies: a “narrow stakeholder strategy”; a “stockholder strategy”, a “utilitarian strategy”; a “Rawlsian strategy” and “a social-harmony strategy”. Pruzan (1998, p.1379) views that shareholder strategy is a simplification:

…focusing on just one stakeholder (the shareholders) and one criterion for performance (profitability) leads to an enormous simplification compared to having to deal with a multiple of stakeholders in which each is characterized by their own values with respect to their interlay with corporation.

This should be a consideration to use two of the typologies in which among them are:

1. The stockholder strategy, referred to as the “shareholder strategy” (Kaplan and Norton, 2004); shareholder strategy encompasses profitability and return on capital, and

2. The social-harmony strategy.

The involvement of stakeholders in the supply of public transport services i.e. what level of relationships are needed between a transportation company and its various stakeholders is necessary in order to meet the main stakeholder – passenger needs. Consequently, as to supply the passenger with the best service, relationships among different stakeholders (municipality, public transport company, state road maintenance service etc.) are of vital importance. It is
essential to emphasize that state institutions and municipalities play a crucial role in managing public transport companies. State institutions influence them through legal instruments and regulations and municipalities, as the main shareholders, influence through the impact on management board and through subsidizing the company from municipality budget. Therefore, it is very important to have in mind this particularity in managing public transport companies and in the relationships with their stakeholders. (Susniene; Jurkauskas, 2002).

In accordance with the background of CSR, in this research the writer argues that CSR is closely related to partnership among stakeholders.

F. Service

A service is an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interaction between the customers and service employees and or physical resources or good and/or systems of the service provider, which are provided as solutions to customer problems (Grönroos, 1990:27).

A service is also defined as an activity or a series of activities that take place in interaction with a contract person or a physical machine which provides customer satisfaction (Lehtinen, 1983:21; source Grönroos 1990:26).

Zeithaml & Bitner (2000) mention that the characteristics of services include:

1. Intangibility: the service cannot be touched or viewed, so it is difficult for clients to tell in advance what they will be getting.
2. Inseparability of production and consumption: the service is being produced at the same time that the client is receiving it (during an Electronic search, or a legal consultation).

3. Perishable: unused capacity cannot be stored for future use. For example, spare seats on one airplane cannot be transferred to the next flight, and query-free times at the reference desk cannot be saved up until there is a busy period.

4. Heterogeneity (or variability): services involve people, and people are all different. There is a strong possibility that the same enquiry would be answered slightly differently by different people (or even by the same person at different times). It is important to minimize the differences in performance (through training, standard-setting and quality assurance).

The aim of public transport is more than merely profit oriented because it is subsidized by the government. Somehow, in terms of sustainable public transport as stated before, it is necessary to meet the main stakeholder’s or the customer needs or requirements and this is related to service quality.

In this research, the writer uses SERVQUAL approach to trace which part doing fails in the delivery process. She will examine the path using service quality model. There are service quality models proposed by Parasuraman et al. (1985) as described in figure 2.3.
G. Public Transport

Public Transport is mass transportation from the government or private company that can carry many people to their destinations in time with cheap expense, comfort, and safe vehicles. An increasingly important task in
transportation is the improvement of public transportation services as customer appeal to make them more useful so they can solve transportation problem.

H. Trans Jogja

Trans Jogja is a new public transportation service in Yogyakarta that serves passengers more complete such as special bus and special shelter, Air Conditioner, scheduled system, and security guards. Actually the system of Trans Jogja adopts Bus Rapid Transit system which aims to give priority for public transport. Even though there is no special lane for Trans Jogja Bus, in practice this new system of public transport hopefully will attract more citizens to use this special kind of public transport. Besides, Trans Jogja management system is quite different from the conventional bus, among them are:

1. Avoiding the use of *cash transfer system*.
2. Only stopping in certain shelter
3. Setting out passenger services and safety.
4. Using special bus shelter and automatic ticketing system

I. Environmental Effects of Transport Modes

It is important to take account the effect of the transport modes on the transport system planning. The effects of transport on the environment are presented on the Table 2.3 below:
<table>
<thead>
<tr>
<th>Marine and inland water transport</th>
<th>Air pollution</th>
<th>Noise</th>
<th>Risk of accidents</th>
<th>Other impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modification of water system during port construction and canal cutting and dredging</td>
<td>Vessels and craft withdrawn from service</td>
<td>Bulk transport of hazardous substances</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rail transport</th>
<th>Air pollution</th>
<th>Noise</th>
<th>Risk of accidents</th>
<th>Other impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modification of water system during port construction and canal cutting and dredging</td>
<td>Noise and vibration around terminals and along railway lines</td>
<td>Derailment or collision of freight carrying hazardous substances</td>
<td>Partition or destruction of neighborhoods, farmland and wildlife habitats</td>
<td></td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Road transport</th>
<th>Air pollution</th>
<th>Noise</th>
<th>Risk of accidents</th>
<th>Other impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollution of surface water and ground water by surface run-off; modification of water system by road building materials</td>
<td>Abandoned lines, equipment and rolling stock</td>
<td>Noise and vibration from cars, motorcycles and lorries in cities, and along main roads</td>
<td>Death, injuries and property damaged from road accidents; risk of transport of hazardous substances, risks of structural failure in old or worn road facilities</td>
<td>Partition or destruction of neighborhoods, farmland and wildlife habitats; congestion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air transport</th>
<th>Air pollution</th>
<th>Noise</th>
<th>Risk of accidents</th>
<th>Other impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modification of water tables, river courses, and field drainage in airport construction</td>
<td>Aircraft withdrawn from service</td>
<td>Noise around airports</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Linster (1990)

From the table above it can be seen that the effects of land transport toward environment are more complex than others. Transport system planning is
actually closely related to sustainable transport and finally sustainable public transport, because it relates to land use planning, transport demand management, the use of renewal resources for public transport or integrated public transport.

There is also an evidence that transport emissions are dependent on transport volumes, specific fuel consumption, and emissions per unit fuels. It means that once the public transport system is implemented, the transport planners have various leverage points in order to change emission volumes and energy consumption. Table 2.5. is an assessment of environmental effects regarding pollutant emissions.

![Figure 2.5. Energy consumption is based on many factors (Wright, 2004)](image)

Figure 2.5. Energy consumption is based on many factors (Wright, 2004)
CHAPTER III
RESEARCH METHOD

A. Data Collection

1. Primary data

The primary data were collected by some methods such as interviews, observations, questionnaires (Holme and Solvang, 1997). In this research primary data were collected directly from the existing passengers of TransJogja by interviewing as shown in Appendix 2.1. The advantages of this method is a deeper understanding on the recent phenomenon in specific research area, on the other hand the disadvantages of this methods are high cost and more time in collecting the data.

This research use questionnaire method, and the sample size is 400 respondents of Trans Jogja passengers from Line 1A, 1B, 2A, 2B, 3A and 3B and they spread out in 15 shelters (Prambanan, Maguwo, Condong Catur, Jombor, Batas Kota, RS. Panti Rapih, Adisucipto, Tugu Station, UGM, Malioboro, Mandala Krida, Senopati, Gembira Loka, Pugeran, Purawisata, Diklat PU and Giwangan Shelter) of 42 Trans Jogja’s shelters as shown in Figure 3.1. The shelter referes to potential shelter for alighting and boarding passengers.
Figure 3.1. The Location of Survey
Based on Israel, (1992) if the population is > 100,000 the number of samples is 400. The respondents are chosen randomly due to the variety of Trans Jogja passengers.

<table>
<thead>
<tr>
<th>Size of Population</th>
<th>3%</th>
<th>5%</th>
<th>7%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>a</td>
<td>222</td>
<td>145</td>
<td>83</td>
</tr>
<tr>
<td>600</td>
<td>a</td>
<td>240</td>
<td>152</td>
<td>86</td>
</tr>
<tr>
<td>700</td>
<td>a</td>
<td>255</td>
<td>158</td>
<td>88</td>
</tr>
<tr>
<td>800</td>
<td>a</td>
<td>267</td>
<td>163</td>
<td>89</td>
</tr>
<tr>
<td>900</td>
<td>a</td>
<td>277</td>
<td>166</td>
<td>90</td>
</tr>
<tr>
<td>1,000</td>
<td>a</td>
<td>286</td>
<td>169</td>
<td>91</td>
</tr>
<tr>
<td>2,000</td>
<td>714</td>
<td>333</td>
<td>185</td>
<td>95</td>
</tr>
<tr>
<td>3,000</td>
<td>811</td>
<td>353</td>
<td>191</td>
<td>97</td>
</tr>
<tr>
<td>4,000</td>
<td>870</td>
<td>364</td>
<td>194</td>
<td>98</td>
</tr>
<tr>
<td>5,000</td>
<td>909</td>
<td>370</td>
<td>196</td>
<td>98</td>
</tr>
<tr>
<td>6,000</td>
<td>938</td>
<td>375</td>
<td>197</td>
<td>98</td>
</tr>
<tr>
<td>7,000</td>
<td>959</td>
<td>378</td>
<td>198</td>
<td>99</td>
</tr>
<tr>
<td>8,000</td>
<td>976</td>
<td>381</td>
<td>199</td>
<td>99</td>
</tr>
<tr>
<td>9,000</td>
<td>989</td>
<td>383</td>
<td>200</td>
<td>99</td>
</tr>
<tr>
<td>10,000</td>
<td>1,000</td>
<td>385</td>
<td>200</td>
<td>99</td>
</tr>
<tr>
<td>15,000</td>
<td>1,034</td>
<td>390</td>
<td>201</td>
<td>99</td>
</tr>
<tr>
<td>20,000</td>
<td>1,053</td>
<td>392</td>
<td>204</td>
<td>100</td>
</tr>
<tr>
<td>25,000</td>
<td>1,064</td>
<td>394</td>
<td>204</td>
<td>100</td>
</tr>
<tr>
<td>50,000</td>
<td>1,087</td>
<td>397</td>
<td>204</td>
<td>100</td>
</tr>
<tr>
<td>100,000</td>
<td>1,099</td>
<td>398</td>
<td>204</td>
<td>100</td>
</tr>
<tr>
<td>&gt;100,000</td>
<td>1,111</td>
<td>400</td>
<td>204</td>
<td>100</td>
</tr>
</tbody>
</table>

It is also supported by Yamane, (1967) that sample size is determined by:

\[
\text{n} = \frac{N}{1+N(e)^2}
\]

In which:

\( n \) = sample size

\( N \) = population size

\( e \) = the level of precision
From the primary survey it was gotten that the average number of passengers/month in 2008 was 297.882 passengers, with the level of confidence of 95% (the level of precision 0.05). The calculation is:

\[
\begin{align*}
  n &= \frac{297.882}{1+297.882 (0.05)^2} \\
  &= 399.5 \approx 400 \text{ respondents}
\end{align*}
\]

The questionnaire is based on some factors such as customer perceived value and quality, punctuality, availability, accessibility, reliability and security.

From this customer satisfaction survey, the analysis used is quantitative analysis with “factor analysis” to observe attributes (i.e. whether the number of shelter or bus adequately supports the accessibility) that actually influence customer satisfaction and this analysis will be executed by SPSS.

Factor analysis, including variations such as component analysis and common factor analysis, is a statistical approach that can be used to analyze interrelationship among a large number of variables and to explain these variable in term of their common underlying dimensions (factor). The objectives are to find a way of considering the information contained in a number of origin variables into a smaller set of variables (factor) with a minimum loss of information (Hair, Anderson, Tatham, Black, 1995).
2. Secondary data

A literature review may include several categories of ‘literature’, for instance documentation, archival records, audiovisual material and book (Yin, 2009). The advantage of this method is low cost and time, on the other hand the disadvantage is that the data are often broader than needed (Holme and Solvang, 1997) or may be incomplete.

In general this thesis is based on literature review, customer satisfaction survey, and comparison studies about sustainable public transport service business and value network system.

The secondary data were obtained from two institutions (Dinas Perhubungan DIY and Varmlandstrafik AB) about the policy, service and the system and also from previous studies.

B. Case Study

In this research, a case study analysis is used because the advantage of this approach is the close collaboration between the researcher and the participants in which it enables participants to tell their stories (Crabtree & Miller, 1999). Through these stories the participants are able to describe their views of reality and this enables the researcher to better understand the participants’ actions (Lather, 1992; Robottom & Hart, 1993).
According to Yin (2003) a case study design should be considered when:
(a) the focus of the study is to answer “how” and “why” questions; (b) you cannot manipulate the behavior of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context.

The case study in this research is about the sustainability of public transport and service in both public transport companies.

C. Qualitative Research Approach

Qualitative research tends to be associated with words or images as the unit of analysis. It relies on transforming information from observations, reports and recordings into data in the form of the written words. The use of statistical procedures places quantitative data in a strong position when it comes to analysis. Qualitative research is used to make description of data (Denscombe, 2007). The qualitative research involved the use and the collection of various empirical materials, like the case study, the personal experience, the biography, the interview, observation, the text of the history, interaction and visual: that picturing routine torque and problematic as well as his meaning in the individual and collective life (Denzin & Lincoln, 1994).

In the analysis qualitative case study methodology provides tools for researchers to study complex phenomena within their contexts, and in this
research the qualitative research for methodological discussion and analysis of empirical study will be used. The research uses data from interviews, field observation, and customer complain database. The aim of qualitative approach is to explore phenomena, customer thought, feelings or interpretations of meaning and process in Trans Jogja’s service.

The analysis of data is conducted in organized and structured work. The result were translated to work as an illustration and to get a holistic view on service. Before the process of the analysis, the researcher carried out the process of the data collection about customer satisfaction in Trans Jogja. The survey was conducted through customer satisfaction of the existing passengers of Trans Jogja.
CHAPTER IV

EMPIRICAL STUDY

A. Sustainable Public Transport Model

Nowadays companies are increasingly paying attention to their core values and to the development of Corporate Social Responsibility (CSR). According to Edvardsson et al., (2005) CSR has to be understood as a responsive toll for value creation, and CSR is linked to stakeholder view (Enquist; Johnson; and Skalen, 2006) and according to Freeman, (1994); and Andriof et al., (2002) it is impossible to disconnect business from ethics, and it is necessary to take all the stakeholders into account.

In accordance with CSR and stakeholder view, there are indicators summarized for sustainable transportation recommended by the Transportation Research Board’s Sustainable Transportation Indicators Subcommittee (ADD40) which will be used as sustainable public transport model in this research. Public transport is a part of transport system, therefore the writer argues that these indicators can be used in terms of public transport and in practice this can be a base for the value network system to be built, regarding how all of the stakeholders are cooperative to the writer to obtain the data and analyse the indicators to examine the possibilities of sustainable public transport, in this case is Trans Jogja, and develop the policies. Besides, diverse stakeholders can change their mind set to think that sustainability is global. It is also stated that the data
quality improvement would provide “value” for diverse policy and planning analysis, regardless of whether it is called “sustainable” transport planning.

Table 4.1. STI Subcommittee’s Recommended Indicators

<table>
<thead>
<tr>
<th>ECONOMIC</th>
<th>SOCIAL</th>
<th>ENVIRONMENTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most important (should usually be used)</strong></td>
<td>Personal mobility (annual person kilometres and trips) and vehicle travel (annual vehicle-kilometres), by mode (non motorized, automobile and public transport)</td>
<td>Trip-to-school mode split (non motorized travel is desirable)</td>
</tr>
<tr>
<td></td>
<td>Freight mobility (annual tonne-kilometres) by mode (truck, rail, ship and air).</td>
<td>Per capita traffic crash and fatality rates</td>
</tr>
<tr>
<td></td>
<td>Land use density (people and jobs per unit of land area)</td>
<td>Quality of transport for disadvantaged people (disabled, low incomes, children, etc)</td>
</tr>
<tr>
<td></td>
<td>Average commute travel time and reliability.</td>
<td>Affordability (portion of household budgets devoted to transport, or combined transport and housing)</td>
</tr>
<tr>
<td></td>
<td>Average freight transport speed and reliability</td>
<td>Overall transport system satisfaction rating (based on objective user surveys)</td>
</tr>
<tr>
<td></td>
<td>Per capita congestion costs</td>
<td>Universal design (transport system quality for people with disabilities and other special needs)</td>
</tr>
<tr>
<td></td>
<td>Total transport expenditures (vehicles, parking, roads and transit services).</td>
<td><strong>Helpful (should be used if possible)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Planning process</strong></td>
<td>Quality (availability, speed, reliability and prestige) of non automobile modes (walking, cycling, rider sharing and public transit).</td>
</tr>
<tr>
<td></td>
<td>Number of public services within 10 minutes walk, and job opportunities within 30 minute commute of residents</td>
<td>Portion of residents who walk or bicycle sufficiently for health (15 minutes or more daily)</td>
</tr>
<tr>
<td></td>
<td>Portion of households with internet access</td>
<td>Portion of children walking or cycling to school</td>
</tr>
<tr>
<td></td>
<td><strong>Market efficiency</strong></td>
<td>Degree cultural resources are considered in transport planning</td>
</tr>
<tr>
<td></td>
<td>Comprehensive (considers all significant impacts, using best current evaluation practises, and all suitable options, including alternative modes and demand management strategies)</td>
<td>Housing affordability in accessible locations</td>
</tr>
<tr>
<td></td>
<td>Inclusive (substantial involvement of affected people, with special efforts to insure that disadvantaged and vulnerable groups are involved).</td>
<td>Transit affordability</td>
</tr>
<tr>
<td></td>
<td>Based on accessibility rather than mobility (considers land use and other accessibility factors)</td>
<td><strong>Portion of total transportation costs that are efficiently priced</strong></td>
</tr>
<tr>
<td></td>
<td>Neutrality (public policies do not arbitrarily favour a particular mode or group) in transport pricing, taxes, planning, investment, etc. applies least cost planning</td>
<td></td>
</tr>
</tbody>
</table>

This table identifies various sustainable transport indicators recommended by the Transportation Research Board’s Sustainable Transportation Indicators Subcommittee. These are ranked by importance and type (Litman, 2009)
Eventhough the indicators for sustainable transport have been established but there is currently no standard set of sustainable transportation indicators. A variety of indicators are used, some of which are particularly appropriate and useful for planning and policy analysis. It would be highly desirable for transportation professional organizations to develop standardized, “baseline” indicator sets, with consistent definitions and collection methods, suitable for comparing impacts and trends between different organizations, jurisdictions and times. This can include some indicators suitable for all situations, and others for specific needs and conditions. (Litman T., 2009: 6).

B. CSR, Value Network, Stakeholder View and Organizational Change of Public Transport in Jogjakarta

1. Background

In Indonesia, the public transport system in each county is run by county transport agency (Dinas Perhubungan); in this case it is similar with PTA and this is also seen as a “value network”.

To create value in public transport, experience as the key of service can be achieved by creating a sort of hub (meeting point) where customers can meet their necessities as described in figure 4.2.
The sustainable public transport, it relates to the overall accessibility which embedded inside mobility options and land use accessibility (Litman, 2008). Therefore public transport affects community due to the necessities of the communities and how they access the necessities.

Public transport service should be in a wide range of integration (modes, purpose of travel, area and also schedule), so customers can make their travel planning. In Trans Jogja service, Trans Jogja indeed has integrated with other modes (Adi Sucipto Airport and train station). However this meeting point is not integrated with travel purpose and schedule. This can be one of the reasons why the shift from private car to public transport is quite slow.

A good pattern of meeting point can be achieved by a good communication among stakeholders. Each stakeholder may contribute value in terms of the continuing use (sustainability) of public transport. That is why the need for reformation in mindset is important for sustainable public transport. It does not merely change the management system.

All stakeholders in the system should initiate to take the responsibility of the impact of Trans Jogja to the society and environment.
2. Trans Jogja

Currently one of the efforts that has been made is the operation of Trans Jogja as the integrated transportation mode. Trans Jogja serves the passengers on some corridors of the main streets in Yogyakarta. There have been some complaints from the users of Trans Jogja, indicating that some problems still exist in its operation. Trans Jogja is a subsidized public transportation service operated by “buy the service system” in order to ease the subsidy mechanism. This system is based on the contract made by the consortium (operators) and UPTD (the local management unit) of Trans Jogja. It can’t be denied that the citizens of Jogjakarta city have a big expectation for the service development to improve the service quality.

3. Organization of Trans Jogja

Trans Jogja was implemented for the first time in 2008 to improve the transportation problems in Jogja. Those problems are :

a. The high level of traffic growth, while the growth of road networks is low;
b. The conventional public transport, most of them owned by private companies, tend to be abandoned, the service was not satisfying;
c. The high growth of motor cycle : 6000-8000 vehicles/month;
d. The growth of new traffic generation centres;
e. The high level of air pollution
f. The high level of vehicle operating cost.
Trans Jogja is a public private company controlled by the County Transport Agency of DIY’s Province and the city of Jogjakarta. Trans Jogja serves intercity transport within the province of DI Yogyakarta based on attraction and generation trip.

In accordance with the value network for public transport inspired by Enquist, 2005, the operation of Trans Jogja integrates some institutions/stakeholder in the organization, among them:

*Board of Principal Politicians (DPRD DI Yogyakarta).* The role of board principals/politicians are to control and investigate all the government’s policy in term of public transport about the possibility that the policy is incompatible with laws. Citizens vote politicians, as they become representative of citizens in government.

*Public Transport Authority.* Trans Jogja is a public private transportation company responsible for operating and serving public transportation in Yogyakarta. The infrastructure is provided by the central government in coordination with Dinas Perhubungan Propinsi DI Yogyakarta (DIY’s county transport agency) as the PTA with such an agreement as shown in figure 3.2. PTA selects operator through tender, selling and buying the service from the consortium (operators).
The contents of each agreement are composed in table 4.4 below:

**Table 4.4. The Content of Each Agreement**

<table>
<thead>
<tr>
<th>Memorandum of Understanding (MoU)</th>
<th>Cooperation Agreement</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Public transport reformation</td>
<td>1. buy the service system</td>
<td>1. rights and obligations</td>
</tr>
<tr>
<td>2. Management and system reformation</td>
<td>2. payment guarantee for 5 years</td>
<td>2. duties and responsibilities</td>
</tr>
<tr>
<td></td>
<td>3. rights and obligations governance</td>
<td>3. minimal service standard</td>
</tr>
<tr>
<td></td>
<td>4. means and infrastructure procurement</td>
<td>4. the magnitude of subsidies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. payment system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. sanctions and fine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. force majeure</td>
</tr>
</tbody>
</table>

Source: Dinas Perhubungan DIY (2008)

In line with the value network inspired by Enquist, 2005, the value network system in DI Yogyakarta should be
Figure 4.5. The Value Network of Public Transport in Yogyakarta Based on (Enquist, 2005)

**Operator.** The operators are consortium of conventional public transport, which provide the public transportation service based on the contract.

**Customers citizens.** The customers of Trans Jogja are the citizens, but there are still complaints about the service of Trans Jogja. Thus, the government tries hard to improve this kind of public transport in order to promote public transport service and finally reduce the congestion and emission as a big problem in the city.

### 4. Service System

The service system of Trans Jogja is made to improve the public transport system in Jogjakarta city. Therefore accessibility, affordability, convenience, and availability are integrated in the system which are:

a. Running Ways
Trans Jogja serves areas surrounding the city of Jogjakarta covering up North, South, East and West Parts of Jogjakarta city on an arterial road.

b. Shelter

The shelter of Trans Jogja is designed as shown in figure 3.3. It is an elevated shelter with separated doors for entrance and stairs down for exit passengers. This elevated shelter is designed to prevent the bus from stopping not in the designated. Every shelter is completed with the information about the route, stopping shelter, and the headway of the bus.

![Figure 4.6. Trans Jogja’s Shelter](image)

c. Vehicles

To meet service quality to passengers, Trans Jogja bus is designed differently from other regular public transports. It is designed to create
much more feeling of service quality than public regular bus. Table 3.4 shows the technical specification of Trans Jogja bus.

Table 4.7. Trans Jogja Bus Specification

<table>
<thead>
<tr>
<th>NO</th>
<th>COMPONENT CATEGORY</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Type</td>
<td>Medium bus, New Vehicle (&lt; 1 year)</td>
</tr>
<tr>
<td>2</td>
<td>Bus Capacity</td>
<td>≥ 22 seats + 1 driver + 22 stands (auto face position)</td>
</tr>
<tr>
<td>3</td>
<td>Model</td>
<td>City bus</td>
</tr>
<tr>
<td>4</td>
<td>Dimension</td>
<td>Proportional Design (length, wide, height)</td>
</tr>
<tr>
<td></td>
<td>a. Length</td>
<td>L = 7400 - 8000 mm</td>
</tr>
<tr>
<td></td>
<td>b. Wide</td>
<td>W = 1800 - 2400 mm</td>
</tr>
<tr>
<td></td>
<td>c. Height</td>
<td>H = 2700 - 3100 mm</td>
</tr>
</tbody>
</table>

Source: Dinas Perhubungan (2008)

Figure 4.8. Trans Jogja’s Fleet

d. Fare Collection

TransJogja has 3 different kinds of prices for different types of passengers:
1) Single trip ticket, the ticket fare is Rp. 3000,- equal to 2.5 SEK for one trip

2) Public regular ticket (subscribe ticket), the ticket fare is Rp. 2700,- equal to 2.25 SEK, passengers can buy the ticket in POS (Point Of Sale) see figure 3.6, and they can fill the ticket from Rp. 15.000 – Rp. 100.000,- (equal to 12.5 – 83.4 SEK)

3) Student regular ticket (subscribe ticket), the ticket fare is Rp. 2000,- equal to 1.67 SEK. Students registers collectively in their school and the DIY’s county transport agency (Dinas Perhubungan Propinsi DIY) will deliver the tickets as they order.

Figure 4.9. The ticket counter (Point of Sale)
e. Service and Operation Plans

Trans Jogja operates buses every day, started from 06.00 in the morning until 22.00.

f. Cost System

Trans Jogja is owned by the County Council of DI Yogyakarta, and the operation is subsidized by the Central government (Transportation Ministry) and the County Councils. The subsidy is given in order to make the service affordable for the citizens and encourage the improvement of the service.

C. Public Transport in Sweden

In Sweden, the public sector runs public transport through the public transport authorities (PTAs) of each county eventhough, privately owned sub contractors perform the actual service delivery. The public transport system in each county can be seen as “value network” (Enquist, 1999;2003).

The public transport system of tomorrow follows a service paradigm (Enquist et al, 2009; www.fordubbling.se) which means that public transportation service is something more than merely transporting people. In line with the new paradigm of SD-logic and sustainable transport, an action-oriented program of remedial measures for public transport with the goal of “a significant increase in the market share of public transport” known as “Doubling Project” in order to double public transport has started a form of partner co-operation in public
transport sector in Sweden. This project is also inspired by the idea and the vision that public transport in Sweden is a natural part of travel in a sustainable society, which means that we cannot force people to use public transport. That is the reason why public transport should be so attractive and competitive that people can choose public transport when it is the best choice (www.fordubbling.se). It is also stated that a doubling of public transport will help to achieve important social goals in connection with the environment, employment, road safety, and equality.

D. CSR, Value Network System, Stakeholder View, and Organizational Change of Public Transport in Sweden

1. Background

Nowadays, all academics and practitioners define that both supply chain management (SCM) and marketing in general have been moving from models and purposes that focuses on goods to general models and purposes associated with partnership, value networks, service provision,, and value creation.

A shift from a central focus on supply and movement of tangible materials for manufacturing to a broader focus on partnerships, relationships, networks, value creation and value constellation is evident (Bovet and Martha 2000; Hoyt and Huq 2000; Gunasekaran and Ngai 2004; Min et al. 2007; Spekman et al. 1998).
Marketing management has also been transitioning away from its central manufacturing concerns (Achrol and Kotler 1999; Gronroos 1994, 2000; Sheth and Sisodia 2006) to concern with relationships, networks and service (Vargo and Lusch 2004a, b).

This movement is characterised by a new paradigm in business called service-dominant logic. From the perspective of the service-dominant logic (SDL) (Vargo and Lusch, 2004; Gronroos, 2008; Vargo and Lusch, 2008a), public transportation services are more than just moving people from origin to destination.

In the context of service-dominant logic IKEA (furniture company) is a good example due to its good role model for a sustainable service business. Even though the context of public transport is quite different from IKEA context, in more general terms much can be learned with help of Edvarson and Enquist (2009). They introduce five principles for sustainable service business which is built upon lesson from IKEA. One of the principles is Corporate Social Responsibility as a strategy for sustainable service business.

Sustainable values based service businesses have a strong commitment to corporate social responsibility (CSR), which leads to quality assurance systems, appropriate performance indicators. Using CSR as a strategy can be a very efficient way of handling the common good issues for a public/private partnership. Public good questions relating to value-in-use such as environment and safety regional development are such issues.
CSR can be understood as the voluntary integration of social and environment concerns into business operation and interactions with stakeholders. It is impossible to disconnect business from ethics, and it is necessary to take all stakeholders into account (Freeman, 1994; Andriof et al., 2002).

Public transport is a value-creating network of stakeholders, based on two interacting value-creating processes and dialogues with stakeholders.

In Sweden, the public sector runs public transport through the public transport authorities (PTAs) of each county, but privately owned sub-contractors perform the actual service delivery. The public transport system in each county can be seen as a “value network” (Enquist, 1999; 2003).

Since 1978 the public transport authority in Sweden has experienced reformation after Government Bill (1997/98:56) Transport policy for sustainable development was proposed by the government. The starting point was mainly that the traffic policy goals concerning a satisfactory service level in different parts of the country could not be met without a well built up public transport. In order to improve public transport, a more effective co-ordination of available resources had to be achieved. A co-ordinated public responsibility for public transport was viewed as the best solution.

The reform was expected to result in lowest fares, co-ordinated ticket systems, improved regularity, shorter travelling times, improved comfort and improved information. It is found as an evidence that the reformation of public transportation authority to become a more involving multiple stakeholder
produced many effects such as improved planning of traffic output and increased travelling. Evaluation shows that substantial improvement of public transport took place after the reformation of Public transport authority. The effects can be seen in the figure below.

![Figure 4.10. Development of local and regional public transport](image)

*Development of local and regional public transport 1970-1985. (Regional train services include only those services for which the public transport authorities are responsible)*

*Source: TPR-rapport 1986:17*

The reformation of public transportation authority inspires the government for developing policy. In summary, the organization of public transport in Sweden has been developed by the following parliamentary resolutions:

a. The public transport authority reform in 1978;

b. Deregulation of local and regional bus services on July 1, 1989 (resolution by Parliament in 1985);

c. The 1988 Transport policy decision. Transport authorities became responsible for county rail services. Government contribution towards operational costs
during ten years. Government grants for investments in public infrastructure, etc.
d. In 1989, the public transport authorities became responsible for all local and regional scheduled transports, i.e. public transport by bus, train, and boat;
e. New laws on Transportation of the Disabled Services and national mobility services make it possible for the Public transport authorities to co-ordinate the services with those of public transport.

In accordance with adopting CSR and partnership among stakeholders in public transport, in Sweden there is an initiative of how value can be created in public transport executed as an action oriented programme of remedial measures for public transport called “Doubling Public Transportation Project”. This kind of initiative involves multiple stakeholders such as Swedish Public Transport Association, the Swedish Bus and Coach Federation, the Swedish Taxi Association, the Association of Swedish Train Operating Companies and the Swedish Association of Local Authorities and Regions.

Doubling project is also carried out by Varmlandstrafik AB for disabled and patients by integrating taxi or special vehicles for disabled with bus line services and share of patient trips as well especially for longer distances.

There is an evidence that no other country in Europe has such an extensive transportation of disabled services as does Sweden. This kind of disabled services have been successfully reduced costs by rendering the service more effectively.
2. Varmlandstrafik AB

a. Introduction

Varmland is a county in Sweden that has a total area of about 17,583 km² and its population is about 320,600 inhabitants in which 274,000 inhabitants live in the county. Varmland has 16 municipalities.

Varmlandstrafik AB (VTAB) is a regional principal service under the laws and agreements between municipalities and county council in Varmland County (Varmlandstrafik AB 2009). It has responsibility for conducting public transport by road and rail in the county, to, and from the county (Varmlandstrafik AB 2009). Furthermore, company is responsible for planning, procurement and management of the separated school traffic, according to a mandate from municipalities, and for a comprehensive treatment of buss goods in ordinary bus (Varmlandstrafik AB 2009).

The aim of Varmlandstrafik AB

1) The overall, long-term aim of Värmlandstrafik AB is regional development that brings increasing taxes and improved conditions for the future of the region.

2) Värmlandstrafik AB is a tool for regional development, a tool managed by our owners, the County Council (LiV) and the Municipalities in the county of Värmland. Värmlandstrafik AB is probably the only tool, where the decisions lay in the hands of local and regional decision.
makers. The question is: what will Värmlandstrafik AB do with this function?

3) Värmlandstrafik will contribute to an economical, social and environmentally sustainable development.

In accordance with organizational change Buchanan et.al, (2003) considers sustainability on a continuum of work method, goal attainment, and process of development and organizational and in terms of stakeholders, there is a project called as an “R3” which stands for Traveling, Research, and Results. R3 is a collaboration among Swedish Transport Administration West, Department of Regional Development, Karlstad University/SAMOT, and The “traffic company” Nobina.

The aim of this project is to help Värmlandstrafik in developing its own organization, its dialogue with traffic entrepreneurs and its customers. In the long run, the Värmland partners want to create a change pressure in the Swedish public transport industry. The projects of R3 to develop traffic or double the travel are:

1) Line-structure

Värmlandstrafik AB is gradually transferred to an increasingly systematic description of transport in different parts of the county. This is partly a way to prepare future service contracts, but partly also a way to create a long-term approach that can form a basis for traffic works in long-term investment. A systematic description is also a pedagogical
method for generating greater knowledge and understanding of public transport mode of operation, between both policy makers and customers.

2) Transport by our trains

In December 2009, Varmlandstrafik AB launched a new service agreement for the regional rail service while the development of inter-regional traffic to Gothenburg and Oslo began. In 2010 initiated a further supply of modern vehicles and was initiated it would run until the first half of 2011.

3) Regional bus traffic

In 2009, work on the System 900, a new traffic supply for Hammersmith area, was delineated by contracts with Swebus and a revision of the system solution based on customer requirements.

4) "Special" Public Transport

Established the coordination between “special public transport (public transport for patient) with regular public transport with a county-wide transportation service function.

b. Organization of Varmlandstrafik AB

The establishment of Varmlandstrafik AB (VTAB) started from governmental proposition in 1978 is to reform local and regional bus services, from an open market, where private parties can participate in transportation services, into a monopoly, where transportation services, particularly bus, are arranged and run by a department that belong to the
counties and local authorities. This regulation implementation was in 1980, which was in Varmland. This department/organization was called Varmlandstrafik AB.

Varmlandstrafik AB is a private limited company (AB = Aktiebolag = private limited company). Around 50% of the operational cost of VTAB is upon the County and Municipality Council. The 50% subsidy to VTAB is divided for county and all municipalities’ council in Varmland. County Council of Varmland provides 50% of subsidy and the rest is divided to municipalities based on the number of inhabitants, the length of routes distance, and the frequency of the bus (economic alignment).

Board of Principal/ Politicians. The role of board principals/politicians is as the owner of PTA, Varmlandstrafik AB. As the owner, the board is a director who determines the purpose of national transportation in Sweden, especially in Varmland. The members of the board are the politicians who arrange shareholders meeting regularly to discuss Varmlandstrafik AB. Citizens vote politicians, as they become representative of citizens in government.

Public Transport Authority. Varmlandstrafik AB is a public transportation company which is responsible for planning a public transportation in Varmland. Besides planning the public transportation services to citizens/customers, it also has to coordinate with stakeholders’ interest. Varmlandstrafik’s policies should have an approval from board of principal/politicians. Actually, PTA is not the real Public transportation
service’s vendor. It delegates the authority to the selected operator by tender. PTA only gives guidance and coordinates operator in serving citizens. Varmlandstrafik AB purchases the services from private parties.

*Operator.* The operators are private companies, which provide the public transportation. PTA chooses the operator through tender. In doing the job, the operator has to obey the guidance that PTA released.

*Customers/citizens.* Customers enjoy the transportation services provided by operator. Citizens pay tax to government, so that government can provide public facilities, in which public transport is one of them.

c. **Service System**

The service system of Varmlandstrafik AB is implemented by adopting Bus Rapid Transit (BRT) systems which are fixed time tables, cut the number of stops, have an adequate frequency and connect traffic to strategic hubs, and are integrated in the following service system.

1) **Running Ways**

Varmlandstrafik buses run on the ordinary road, but only in Karlstad-Hamaro route they run on the motor bikeway.

2) **Shelter**

Varmlandstrafik uses low floor buses, so they use an ordinary shelter. Some places are only signed by post with timetable.
3) Vehicles

The law in Sweden gives mandatory to public transport authority to provide facilities to ease elderly people and people with disabilities accessing the service. Varmlandstrafik AB uses low floor buses to ease people with wheelchair so that they can easily enter the bus. Vehicles should be environmental friendly, and although it uses diesel, the emission should meet Euro II regulation.

4) Fare Collection

Varmlandstrafik has 20 different prices for different types of passengers and locations. They are available for children, youths, adults, students, elderly people, people with disabilities, and the prices cover up bus and train service. Obviously, different locations will have different fare. Passengers can buy adult single ticket for a month with cheaper price than buying it every single day. As an example, the ticket price for bus within county is 855 Kr for 30 days, while a single ticket costs 96kr per trip (Varmlandstrafik AB 2009).

5) Intelligent Transport System (ITS)

Until now, Varmlandstrafik does not use global position system (GPS) for real time monitoring. Time is integrated with other routes; each bus is an equipped with special phone to call Traffic Management System (TMC). If the bus comes late to the bus station or meeting point, the driver will call TMC and TMC will contact other bus that will meet in the same meeting
point. If it is possible, other buses will adjust their timetable, so that the passengers do not have to worry to miss the bus.

6) Service and Operation Plans

Varmlandstrafik operates buses every day, started from 05.00 in the morning until 24.00. On Fridays, there is a night bus. Varmlandstrafik reduces operational time on Saturday to check the schedule. This frequency is different in each municipality because of market needs. The Varmlandstrafik’s further plan doubles the number of public transportation users in Varmland County.

7) Cost System

Varmlandstrafik is owned by County Council of Varmland and Municipalities Councils in Varmland. Obviously, the subsidy comes from the Municipalities and County Councils. The subsidy for Varmlandstrafik AB is 50% of the total operational cost. Then, the subsidy is distributed to the County and Municipalities. Fifty percent is upon the County Council fund and the rest is shared by Municipality Councils. The subsidy proportion should be the responsibility of the municipalities based on the number of inhabitant, the distance of route, and the frequency of the bus.

8) Value Network System

The Varmlandstrafik AB integrates all the system in term of creating value for the customers and doing a “social security” for disadvantage people (disable people or sick people) who cannot do the
travel by themselves for meeting their doctors to the Hospital in Hammaro. Varmlandstrafik AB cooperates with the taxi company, and the passengers can call the taxi to take them to the hospital with common prices.

In Hammaro, Varmlandstrafik AB also serves the remote area with small demand by collecting the demand in a certain time, and deliver the passengers to the closest service of public transport.

The infrastructure was made to meet a “hub point”, so every mode encourages the use of Varmlandstrafik service. For instance the PTA of Varmland plans to build a “Park and Ride area for private car in order to reduce the traffic assignment to the central city, so citizens who use private cars can park their cars in the area and continue their travels by Varmlandtrafik AB buses.

The government also encourages cycling and walking mobilizations by providing the access for them with comfortable lane of cycling and pedestrians and they also can park their bicycle in a certain place and continue their travel to their destination by using Varmlandstrafik AB service.

E. Sustainable Service

To measure the Trans Jogja passengers satisfaction, a statistic package program “SPSS” was used. The result derived from descriptive statistics shows that the value is 3.4 (in between 3 to 4). It means that the passengers perceive that
the service quality is neither good nor bad, and according to Parasuraman et al (1985) there are five dimensions in service quality which are:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibles</td>
<td>Appearance of physical facilities, equipment, personnels, and communication materials</td>
</tr>
<tr>
<td>Reliability</td>
<td>Ability to perform the promised services dependably and accurately</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Willingness to help customers and provide prompt service</td>
</tr>
<tr>
<td>Assurance</td>
<td>Knowledge and courtesy of employees and their ability to convey trust and confidence</td>
</tr>
<tr>
<td>Empathy</td>
<td>Caring, individualized attention the firm provides for its customers</td>
</tr>
</tbody>
</table>

The five dimensions are used to analyze the factor influencing the service of Trans Jogja.

To explore the structure of the quality factors and how they are interrelated a factor analysis was used. Using all respondents the structure shows a five dimensional structures. In total the five factors explain that there is 60.99% of the variation in the 23 individual quality dimensions.
Table 4.11. Component variables influence service

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>FACTOR COMPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tangibles</td>
</tr>
<tr>
<td>Comfortable in shelter</td>
<td>v</td>
</tr>
<tr>
<td>Comfortable while seating</td>
<td>v</td>
</tr>
<tr>
<td>Comfortable while standing</td>
<td>v</td>
</tr>
<tr>
<td>cleanliness</td>
<td>v</td>
</tr>
<tr>
<td>Walking distance</td>
<td>v</td>
</tr>
<tr>
<td>Waiting time</td>
<td></td>
</tr>
<tr>
<td>Operating hours</td>
<td></td>
</tr>
<tr>
<td>punctuality</td>
<td></td>
</tr>
<tr>
<td>Travel time</td>
<td></td>
</tr>
<tr>
<td>Ticketing system</td>
<td></td>
</tr>
<tr>
<td>Number of shelter</td>
<td>v</td>
</tr>
<tr>
<td>Number of bus</td>
<td>v</td>
</tr>
<tr>
<td>Complaint handling</td>
<td>v</td>
</tr>
<tr>
<td>Crew service</td>
<td></td>
</tr>
<tr>
<td>Readiness to help</td>
<td></td>
</tr>
<tr>
<td>Secure from crime</td>
<td>v</td>
</tr>
<tr>
<td>safety</td>
<td></td>
</tr>
<tr>
<td>Information system</td>
<td></td>
</tr>
<tr>
<td>accessibility</td>
<td></td>
</tr>
<tr>
<td>Easiness to get seat</td>
<td></td>
</tr>
<tr>
<td>Availability of space</td>
<td>v</td>
</tr>
<tr>
<td>tariff</td>
<td>v</td>
</tr>
<tr>
<td>Meeting point</td>
<td>v</td>
</tr>
</tbody>
</table>

*Source: analysis*

In accordance with the analysis result, there is also a supporting result from individual interview regarding what actually influences the satisfaction and the service to be improved, and the result shows that the customers emphasize on tangibles and reliability as shown in the following table:
Table 4.12. The Components Influence Service from Individual Interview

<table>
<thead>
<tr>
<th>Variables</th>
<th>tangibles</th>
<th>reliability</th>
<th>responsiveness</th>
<th>assurance</th>
<th>empathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>improvement of facilities</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>comfortable in shelter</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cleanliness</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>comfortable while standing</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td><strong>151</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td><strong>38%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of shelter</td>
<td>77</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of bus</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>punctuality</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>operating hours</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td><strong>147</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td><strong>37%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>crew service</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td><strong>15</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td><strong>4%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>safety</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>security</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td><strong>8</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td><strong>2%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>accessibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>easiness to get seat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tariff</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>availability of space</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td><strong>74</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td><strong>19%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: analysis
CHAPTER V

RESULT AND DISCUSSION

The sustainable transportation indicator data from Transportation Research Board’s Sustainable Transportation Indicators Subcommittee should be a good example for a good partnership among stakeholders. Each stakeholder plays role to define the standard, evaluate the existing condition and compare it with the standard to find out the problem and finally work together for developing policies.

To accommodate the three bottom lines of sustainability and based on sustainable transport indicator in this thesis, the writer examines the contribution of the “transportation level” in term of value network and stakeholder view concerning sustainability, but does not intend to examine all the indicators based on the indicators by Victoria Transport Policy Institute due to the limitation of data and time.

Based on value network system, CSR, stakeholder view, and organizational change on the empirical study, we can analyse sustainability in both public transport company as described below.
A. Sustainability in Trans Jogja

1. Economic Aspect

According to Litman, (2009) Economic things consist of level of mobility, congestion cost, and land use density (people and jobs per unit of land area).

a. Personal mobility

While it may be unnecessary to state this premise, a sustainable transport system should prove a reasonably high level of mobility (Black, 2010). Based on transport results initiatives of Asian Consultation Workshop, 2005 mobility is about mean time for journey to work (urban household) and more relevant to cost. In accordance with Schrank and Lomax, (2005) mobility is about total hours of delay and total gallons of “wasted fuel”. The total hours of delay and gallon of “wasted” fuel could be saved by public transport. Trans Jogja is a new way system of public transport with the concepts of Bus Rapid of Transit (BRT). With this new kind of public transport, the government tries to solve the congestion and environment problem due to the service of the conventional bus operated by older buses and because busses stopped everywhere that passenger wants that leads to obstacle for other road users.

b. Trans Jogja has been operating for two years, but still there is no evidence about how big is the contribution of this public transport to “total hours of
delay” and “total gallons of wasted fuel”. There is no clear indicator of this on the contract between operator and PTA (Dishub). There is also no clear action to overcome this problem. This problem tends to be a missing link of stakeholders that should be responsible for this evaluation for developing the policies.

c. Congestion cost

Policymakers generally do not regard congestion as a major barrier to transport sustainability, apparently because the resulting impacts are so diverse. Congestion decreases the speed of vehicles, resulting in both lower fuel efficiency and increasing emissions detrimental to human health. While increasing motor vehicle incidents, congestion actually decreases fatalities. Perhaps congestion is viewed as a manifestation of all the other criteria leading to nonsustainability, making its inclusion as a negative factor that seems redundant” (Black, 1010)

Trans Jogja as a Bus Rapid Transit (BRT) should have a special lane (priority) to ensure the mobility and the reliability of the service, to avoid conflict with other road users and to prevent congestion. Besides, Trans Jogja should be a public transport service that can accommodate demand efficiently and effectively. Congestion is related to such an “externalities” cost by emission and the increasing vehicle operating cost.

To encourage the use of public transport PTA of Trans Jogja and other stakeholders should try to formulate the policy for external cost. The
pollutant should be paid by the pollutant contributors regarding the rapid growth of private car users.

d. Land use density (people jobs per unit of land area)

The role of Trans Jogja in land use density (people and jobs per unit land area) should open the opportunities to the community to get a job. Yogyakarta is a tourism destination area. There are so many objects that can be potential markets of the city. The service of Trans Jogja should reach all the locations and accommodate the demand. Yogyakarta is connected with other municipalities, and Yogjakarta is as the generating area for tourism. As a value network of stakeholders, the service of Trans Jogja should be integrated with other modes of each county to promote the tourism area to become a potential marketing.

2. Social Aspect

Social indicators consist of:

a. Trip to school mode split (non motorized travel is desirable), portion of residents who walk or bicycle sufficient for health (15 minutes or more daily). It is a fact that in Yogyakarta the bike line facility is not adequate. The government provides the facility on certain roads, but it is used by other road users and for parking lot (Bike to Work Community, 2009). This kind of transport should be integrated with Trans Jogja network.
b. Quality of transport for disadvantaged people (disabled, low incomes, children, etc)

From the design perspective, the shelters and buses are not comfortable for disabled and elderly people because both the shelters and buses are very small for wheelchair.

c. Affordability (budgets devoted to transport)

The price for the transport in Jogjakarta is still quite unaffordable, based on the survey on Trans Jogja’s customer the average cost of transport is 10%, but passengers from middle to high income still spent more than 10% for transport budgets.

\[\text{Table 5.1. The Percentage of Transport Cost toward Income}\]

<table>
<thead>
<tr>
<th>No.</th>
<th>Transport Cost/Income</th>
<th>Quantity</th>
<th>%</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1%</td>
<td>1</td>
<td>0.3%</td>
<td>1%</td>
</tr>
<tr>
<td>2</td>
<td>2%</td>
<td>6</td>
<td>1.5%</td>
<td>12%</td>
</tr>
<tr>
<td>3</td>
<td>3%</td>
<td>30</td>
<td>7.6%</td>
<td>90%</td>
</tr>
<tr>
<td>4</td>
<td>4%</td>
<td>6</td>
<td>1.5%</td>
<td>24%</td>
</tr>
<tr>
<td>5</td>
<td>5%</td>
<td>81</td>
<td>20.5%</td>
<td>405%</td>
</tr>
<tr>
<td>6</td>
<td>6%</td>
<td>14</td>
<td>3.5%</td>
<td>84%</td>
</tr>
<tr>
<td>7</td>
<td>7%</td>
<td>17</td>
<td>4.3%</td>
<td>119%</td>
</tr>
<tr>
<td>8</td>
<td>8%</td>
<td>16</td>
<td>4.1%</td>
<td>128%</td>
</tr>
<tr>
<td>9</td>
<td>9%</td>
<td>1</td>
<td>0.3%</td>
<td>9%</td>
</tr>
<tr>
<td>10</td>
<td>10%</td>
<td>156</td>
<td>39.5%</td>
<td>1560%</td>
</tr>
<tr>
<td>11</td>
<td>13%</td>
<td>6</td>
<td>1.5%</td>
<td>78%</td>
</tr>
<tr>
<td>12</td>
<td>15%</td>
<td>18</td>
<td>4.6%</td>
<td>270%</td>
</tr>
<tr>
<td>13</td>
<td>16%</td>
<td>1</td>
<td>0.3%</td>
<td>16%</td>
</tr>
<tr>
<td>14</td>
<td>17%</td>
<td>1</td>
<td>0.3%</td>
<td>17%</td>
</tr>
<tr>
<td>15</td>
<td>18%</td>
<td>1</td>
<td>0.3%</td>
<td>18%</td>
</tr>
<tr>
<td>16</td>
<td>20%</td>
<td>29</td>
<td>7.3%</td>
<td>580%</td>
</tr>
<tr>
<td>17</td>
<td>25%</td>
<td>2</td>
<td>0.5%</td>
<td>50%</td>
</tr>
<tr>
<td>18</td>
<td>30%</td>
<td>6</td>
<td>1.5%</td>
<td>180%</td>
</tr>
<tr>
<td>19</td>
<td>35%</td>
<td>1</td>
<td>0.3%</td>
<td>35%</td>
</tr>
<tr>
<td>20</td>
<td>40%</td>
<td>1</td>
<td>0.3%</td>
<td>40%</td>
</tr>
<tr>
<td>21</td>
<td>80%</td>
<td>1</td>
<td>0.3%</td>
<td>80%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>395</td>
<td>100.0%</td>
<td>3796%</td>
</tr>
</tbody>
</table>

Source: analysis
d. Employee

Employees have their role in a sustainable business. It regards how the employee treats the customers. Based on Maryatmo, (2009) it tends to be an imperfect labour market in Trans Jogja; employee is placed on the lower priority of the service. They earn low salary and this thing is considered to be a shortfall in delivering service quality. In the contract there is no evidence of how the company engages the employees in the service.

3. Environmental Aspect

According to Institute for Transportation and Development Policy (ITDP) of United states (2003) it is stated that the exhaust emission from motor vehicles in Jogjakarta city, the Hydrocarbon has exceeded the national ambient air quality standard as defined in PP RI No. 41 tahun 1999 which is 160 ug/m³.

There is no provision in the operational of Trans Jogja to regulate that the bus used in the service should be an environmental friendly bus. A significant decrease of pollutant emissions can be achieved if European emission standards such as Euro II-IV are implemented in developing country German Technical Co-operation (2005). This should be a precondition in a contract between PTA and operator.
4. Planning Process

Based on sustainable transport indicators recommended by Transportation Research Board’s Sustainable Transportation Indicators Subcommittee (Litman, 2009), planning process should accommodate 3 points:

a. Comprehensive (considering all significant impacts by using best current evaluation practices and all suitable options, including alternative modes and demand management strategies);

b. Inclusive (substantial involvement of affected people with special efforts to ensure that disadvantaged and vulnerable groups are involved).

c. Based on accessibility rather than mobility (considering land use and other accessibility factors).

In Indonesia, transportation strategy planning the process of transport system contained inside is regulated in KM 49 Year 2009 on Sistem Transportasi Nasional or National Transportation System. This National transportation system consists of transportation levels which are organized systematically and encompass all the networks and transportation modes.

The transportation level concept background by the county autonomy means that each county is responsible for its local and regional transportation, and the central government funds for the transportation infrastructure. The transportation level consists of:
a. National transportation level (Tatranas). It is aimed to compose a transportation service system efficiently and effectively, and to transport people and/or goods between national or international nodes;

b. Province transportation level (Tatrawil). It is for transporting people or goods within regional area;

c. Local transportation level (Tatralok). It transports people or goods in a county. This level must be used in the county of Yogyakarta by involving local, regional government and the operator. Transportation should be operated efficiently and effectively.

Tatralok should be made as a value chain or value network for the citizens of Jogjakarta city because Tatralok should integrate all modes, transportation network, and purposes or necessities.

In terms of value network system and these 3 points, Tatralok should be integrated within community development due to the composition of the tatralok which should define the nodes of transportation based on the accessibility and transportation strategy regarding sustainable public transport.

Regarding regional autonomy, it is not easy to accommodate the 3 (three) points of planning process in Tatralok because the tendency of every region shows that each region emphasizes “how to create revenue (PAD)” for each region.
B. Sustainability in Varmlandstrafik AB

1. Economic Aspect

The threat to sustainability is not so much of “running out” of oil, but of the increasing costs, environmental and economic, and of its continuing use (Greene; Wegener, 1997).

a. Personal mobility

In hospital of Hammaro the capacity of customers parking lot has been saturated, and the impact is a long queue up to the road. Instead of increasing the capacity of parking, the PTA of Varmlandstrafik improve the lot by separating the lane for the bus in order to reduce the waiting time and avoid queueing. The PTA also co-operates with the hospital to encourage the patient to use public transport. Providing or increasing the capacity is not sustainable because the demand will increase in line with the supply. In sustainability the control of demand is needed.

Personal mobility is related to the access of people to their work, education, entertainment, and health facilities as well. For supporting the mobility particularly in morning peak season, the PTA co-operates with the municipal government to make a plan to build a bridge park and ride facilities. Park and ride facilities are built to control the demand of travel by car to the central city. With the facilities the citizens can park their cars and continues the trips by using Varmlandstrafik AB bus. Varmlandstrafik AB
also integrates the service in each county to the train service. In personal mobility there must be no discrimination for disabled people.

b. Congestion cost

Schipper (1996) states that sustainable transport is transportation where the beneficiaries pay their full social costs, including those that would be paid by future generations. He further notes that changes in travel are associated with a number of potential externalities including accidents, air pollution, congestion, noise, damages to the species’ habitats, increases in carbon dioxide production, and the import of oil. As described in chapter 2 on table 2.4 pollutant emissions is resulted from mode share multiplied by fuel consumption per kilometer and emission per unit of fuel. It is necessary to consider road pricing regarding congestion cost for demand management purposes and make public transport more attractive.

Road pricing is not yet implemented in Karlstad due to the effectiveness of this means. A study by Steg & Schuitema (2007) found that most people did not intend to change their car use if a pricing policy was implemented. However, it was found that pricing policies were relatively more effective when prices increased significantly, but commuters were hardly affected.

However, to reduce the congestion contributed by private cars or as a transport demand management efforts, the municipal council of Karlstad developed principal planning:
1) Concentration of existing buildings

2) Mixed building functions (residential, commercial, service)

3) Greater concentration in good public transport locations and/or with cycling distance to major workplaces, connection points or the centre

4) Giving priority to pedestrians and cycle traffics, and public transport in the planning process (giving precedence over car traffic, building short-cuts, and creating secure and attractive routes).

5) Urban district planning that increase access to service, commerce, work, and activities in villages and urban districts, facilitate the establishment of suitable activities and service, and increase the demand/population based on concentration.

6) New or developed commerce (that does not take up a lot of space or is disturbing) should be integrated in suitable ways with housing and activities.

7) Locating companies and other activities in the "right" place from the point of view of the transport demand they generate.

8) Linking together the various components of the public transport system and increasing the level of inter modality at Karlstad Central Station and other important junctions. A travel centre is a major step in this direction.

c. Land use density (people jobs per unit of land area)

Based on “How we can together double travel by public transport” paper (www.fordubbling.se), there are no fewer than 66,000 people who are
directly employed in the public transport sector. A doubling of public transport would, of course, mean a significant increase in the number of public transport employees. This prevailed in each county covered in the doubling project including Karlstad.

2. Social Aspect

Social indicators consist of:

a. Trip to school mode split (non motorized travel is desirable), portion of residents who walk or bicycle sufficient for health (15 minutes or more daily). The municipal council of Karlstad place the pedestrian and cyclist facilities in the regional development. The government ensure the usage of the facilities by providing safer and more secure pedestrian routes, giving better opportunities for exercise and recreation, providing a safe pedestrian traffic environment for children.

For cycle traffic the government try to develop and improve infrastructure.

The basic starting point for the work is the cycle traffic plan that is proposed to be developed. Two priority areas are:

1) Continuous cycle track network

Karlstad already has a relatively well-developed cycle network that incorporates 230 km of separated cycle tracks. It is, however, important to develop a continuous cycle track network that is attractive to cyclists.
A continuous cycle track network is characterized, among other things, by the fact that it is homogeneous with an unbroken and high level of quality. One important aspect of this is the design of safe crossing points.

2) Improved cycle parking and developed opportunities for people to park their cycles adjacent to public transport stopping places and continue their journey by bus or train. The Varmlandstrafik AB infrastructure system is connected with pedestrian and cyclist facilities.

b. Quality of transport for disadvantaged people

Varmlandstrafik AB is responsible for disabled transportation due to “Transportation of the Disabled Services and National Mobility Services”. Most trips are made by taxi or by different kind of vehicles. This kind of transport is integrated into public transport. These services have also proven to be cost-effective and have been seen as part of social welfare services, because in many countries, publicly paid trips by taxi or special vehicle, mainly the Transportation of the Disabled Services and transportation of patients cost more than the scheduled services carried out by bus or train. However, in Varmlandstrafik AB service, the passengers pay the normal cost.

c. Affordability (budgets devoted to transport)
With integrating ticketing system, schedule and transportation mode the budget for transport can be minimized.

d. Employee

Varmlandstrafik AB never gives special treatments or rewards to bus drivers or train crews in order to deliver good service to the customers. Instead, Varmlandstrafik AB practices a way of letting the bus drivers or train crews become involved.

Then it started a project in which the purpose was to create a common view of how the quality was going to improve and the customer trust the public transport in general.

In teams composited by representatives for different occupational groups within Värmlandstrafik and Nobina (the largest bus operator in Sweden), a common quality management system has been created for all public transport. Varmlandstrafik AB started to systematically follow up customer cases and learned from them. Varmlandstrafik AB contract issues are:

1) a safe travel
2) a good treatment (of the customers)
3) a correct time of departure
4) an unbroken and clean vehicle (bus/train)
One of the effects is to get rid of the PTA role of supervision and penalty-system. Instead, a system where everyone works for making a better journey for the customer has been tried to attain.

3. Environmental Aspect

It can be seen that the doubling public transportation is responsible for the environmental quality. The project purpose or responsibility for the “environment” is at the same time to indicate improvements when it comes to the contribution made by public transport towards sustainable development. The Swedish Public Transport Association (Svenska Lokaltrafikforeningen, SLTF) has drawn up an environmental programme that entails the following goals for procured transport:

a. Public transport by bus and non-electrically powered trains shall be operated so that the use of fossil fuels is cut by at least 40 % before 2012 and by 90 % before 2020.

b. The mean emission of particles from bus services shall by 2010 have decreased by 85 % compared with that of the year 2000. The mean emission of nitrogen oxides from bus services shall by 2010 have decreased by 60 % compared with that of the year 2000.

Today, three PTAs have signed the letter of intent for the environmental program and more are on the way. The goal is that all PTAs shall have adopted
SLTF’s environmental program by 2009 and that the program will by then also include taxis.

4. Planning Process

In the municipality of Karlstad, transport strategy is integrated within primary community planning not only for the environment but also for totally sustainable development of the transport system.

C. The Contributors of CSR, Stakeholder View and Organizational Change in Sustainable Public Transport

From the analysis regarding value network, CSR, stakeholder view, and sustainability, it can be defined that sustainability is related to multi partnership with stakeholder as shown in table 5.2.
Table 5.2. the contributors of CSR, stakeholder and organizational change in sustainability

<table>
<thead>
<tr>
<th>Sustainability</th>
<th>TransJogja</th>
<th>Varmlandstrafik AB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Personal mobility</td>
<td>No evidence</td>
<td>Yes</td>
</tr>
<tr>
<td>b. Congestion cost</td>
<td>No evidence</td>
<td>Yes</td>
</tr>
<tr>
<td>c. People jobs per unit of land area</td>
<td>No evidence</td>
<td>Yes</td>
</tr>
<tr>
<td>Stakeholders involved</td>
<td>PTA and operator</td>
<td>Parliament, municipal council, PTA, operator, customer</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Trip for non motorized</td>
<td>No evidence</td>
<td>Yes</td>
</tr>
<tr>
<td>b. Quality of transport for disadvantaged people</td>
<td>No evidence</td>
<td>Yes</td>
</tr>
<tr>
<td>c. Affordability</td>
<td>No evidence</td>
<td>Yes</td>
</tr>
<tr>
<td>d. Employee</td>
<td>No evidence</td>
<td>Yes</td>
</tr>
<tr>
<td>Stakeholders involved</td>
<td>-</td>
<td>Parliament, municipal council, PTA, operator, customer</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>No evidence</td>
<td>Yes by using renewal resources</td>
</tr>
<tr>
<td>Stakeholders involved</td>
<td>-</td>
<td>Parliament, municipal council, PTA, operator, customer</td>
</tr>
<tr>
<td><strong>Planning Process</strong></td>
<td>Tatralok has been integrated within land use planning but there is no evidence about transport strategy in term of sustainability</td>
<td>Yes</td>
</tr>
<tr>
<td>Stakeholder involved</td>
<td>Parliament, municipal council</td>
<td>Parliament, municipal council, PTA, operator, customer</td>
</tr>
<tr>
<td><strong>Corporate Social Responsibility</strong></td>
<td>Varmlandstrafik AB is responsible for disable people and patient</td>
<td>No evidence that carried out by Trans Jogia company to integrate social and environmental concerns into business operations.</td>
</tr>
<tr>
<td><strong>Organizational Change</strong></td>
<td>In development projects of public transport such as “R3” project, the organization change is the main purpose to a county wide transportation service function</td>
<td>In the public transport policy or public transport development, there is no evidence for organizational change, as far the change is merely on the bus management system which known as a “buy the service system”</td>
</tr>
</tbody>
</table>

*Source: analysis*
D. Service Performance

The analysis of existing condition of service performance is important to measure how successful Trans Jogja is in providing sustainable service compared with Varmlandstrafik AB.

1. Existing Condition of Trans Jogja’s Service performance

a. Tangibles

The preconditions for comfortable and appearance, safety equipment in the bus and cleanliness are determined in the contract. Somehow, there are complaints from the customer that they do not feel comfortable while awaiting in the shelter due to the capacity of the shelter. Sometimes the air conditioner does not work, and feel uncomfortable while seating or standing in the bus particularly in the peak hours when the passengers are overcrowded.

b. Reliability

There is no timetable provided in Trans Jogja. The service has been determined by headway which is about per 15 minutes. In the contract, the round trip time per bus is determined, but it seems to be hard to obtain this trip time due to the congestion in certain road experienced by Trans Jogja since Trans Jogja has no special lane. Based on the survey, the passengers perceive lack of fleets.
Based on the contract, the operating hours of Trans Jogja are from 05.30 a.m. until 09.30 p.m. This makes passengers feel secure to count on the bus. For walking distance the passengers perceive that the number of shelters is not adequate, so the passengers have to walk a bit far.

c. Responsiveness

There is no evidence of how Trans Jogja manages the customer complaints. The operator gives a phone number for complaints but sometimes it does not work. The Trans Jogja does not have a complaint handling management system. In existing condition the customers complain or give suggestions on an unofficial site (www.tranjogja.net).

d. Assurance

Assurance covers Safety & Security, Competency, and Courtesy items. Safety & Security in the contract requires operator to provide bus safety equipment, complete the bus with an emergency door, and secure the bus by placing an official security in the bus. The bus also has to be well maintained; inspection should be done regularly. Trans Jogja also ensures that the driver will be operating the bus safely, as shown in the contract that there is a penalty for the driver who does not drive the bus in a proper way and good attitude.

However, the bus is not proper enough for disabled people due to the size of the bus and the design of the shelter.
e. Empathy

Empathy item covers Accessibility and Service Monitoring item. Accessibility consists of Availability of Service (service coverage), Availability of Space (capacity) and Availability of Information.

Accessibility, the mobility for disabled people, is not regulated clearly in the contract. The facilities or equipment for disabled people are not provided in the bus.

Capacity. The passengers perceive that the capacity of Trans Jogja bus is not adequate, particularly in the peak hours. In this case comfort seems to be abandoned.

Coverage area and frequency. With the existing waiting time the passengers perceive that the frequency is unproper.

Information. There are complaints from passengers about the actual information. The passengers ask the company to provide the notification about service changes and delays.

Service monitoring. There is no provision in the contract about carrying out service monitoring.

2. Existing Condition of Varmlandstrafik AB’s Service Performance

Based on the previous analysis carried out by Yok Suprobo, (2009) for his thesis, I try to describe the existing condition of Varmlandstrafik AB’s service performance.
a. Reliability

Passengers can count on the reliability of Varmlandstrafik AB services. Varmlandstrafik AB provides timetable, fleets, and guarantee. Punctuality and travel time have been set and accomplished well by operators. Buses operating from 05.00 a.m. until late in the evening make passengers feel secure to count on the bus. With no congestion occurring, bus trip does not have any constraint to meet timetable. From complaint data, it shows few incidents that the buses do not deliver their service but VTAB gives guarantee to those complainers.

b. Tangibles

In the contract Vamrlandstrafik AB requires operator to provide comfort and convenience in the bus. Generally, fleets are in good appearance and comfort. The regulation states about good air circulation/air conditioner/heater, ergonomics of seat, lighting, etc. The regulation also states that the bus should be in clean condition before it is operated. If there is complaint about tangibles, VTAB will check it to the operator why this problem occurs.

c. Responsiveness

VTAB hires call-center company to handle customer complaints. Complaint data are connected directly to VTAB’s staff that has responsibility to give feedback to complainer and report it to operator if it is needed. If complainer suffer financial loss then VTAB will pay back that
loss. Complainer can reach VTAB to send complaint through telephone, short message, and email.

d. Assurance

Assurance covers Safety & Security, Competency, and Courtesy item. Safety & Security in the contract requires operator to provide bus safety equipment, such as fire extinguisher, supporting device for wheelchair user, etc. Doors should be designed in order to prevent passengers from being squeezed when they are boarding and alighting. Inspection on braking system should be done regularly based on Swedish Automobiles regulation.

Complaint data show that sometimes people get irritated due to the driver and front-liner attitude. Based on the complaint, VTAB takes action to check the operator; there is a strict prohibition for the driver to chat or use cellular phone while driving and there is also a test for drivers to find out that they are in the right condition for driving.

e. Empathy

Empathy item covers Accessibility and Service Monitoring item. Accessibility consists of Availability of Service (service coverage), Availability of Space (capacity) and Availability of Information.

Accessibility is regulated in the contract. It states that buses must be accessible by the persons with reduced mobility including wheelchair users.
Capacity. Varmlandstrafik AB does not have problem with Capacity, although the bus capacity would be full on the peak hours but it is still enough. Varmlandstrafik AB does not intend to add more fleets.

Coverage area and frequency. Varmlandstrafik AB serves trunk routes in all municipalities in Varmland. For certain areas that do not have big demand, Varmlandstrafik AB does not make route for bus. As a substitution, VTAB AB provides public transport by demand. VTAB also faces problem about limited frequency of bus. People want more frequency but it is an inefficiency to provide more frequency with less demand.

Information. Varmlandstrafik AB provides all information about service in public transport including timetable, customer service representative, notification about service changes, etc. As example, if there will be bus delay and timetable changes, VTAB will take responsibility to announce to citizens through mass media, internet notification in shelter, and short messages.

Service monitoring. Service monitoring is done by Traffic Management Center of Varmlandsrafik AB.

E. Sustainable Service in Trans Jogja

Based on Dinas Perhubungan, komunikasi dan Informatika Daerah Istimewa Yogyakarta, since the first year Trans Jogja was operated in 2008 the number of passengers has increased 32% in 2009 (cetakkompas.com). However, one year Trans Jogja bus operation cannot be an indicator for a sustainable service
business because sustainable service business is a long term relationship and how to attain customers.

Public sector services are responsible and accountable to citizens and communities as well as to customers and service users. There are wider public sector agendas than simply service quality: improving access to existing services; equity and equality of service provision; providing efficient and effective services within political as well as resource constraints; and contributing to the wider public good. The definition of service quality in the public sector therefore takes a wider meaning than in the private sector and accordingly its measurement becomes both more complex and more difficult.

Concerning the existing condition of Trans Jogja, a survey carried out by Munawar, (2008) states that most of the public transport users agree that the quality of public transport should be increased, although they have to pay more. For non public transport users, they will use the public transport if public transport quality is better than now. However, the quality that they need should be defined clearly.

Gaster, (1995) comments that SERVQUAL may be useful for service manager, but for public sector transport it will not give a complete picture of needs, expectations, and perceptions. [It] is not simply a matter of meeting expressed needs, but of finding out unexpressed needs, setting priorities, allocating resources and publicly justifying and accounting for what has been done.
However, in term of shareholder strategy concerning profitability and return on capital, it is important to determine what process makes the service shortfall for the long run company or sustainable service business. There is evidence that the government used to give subsidy for the conventional bus service such as DAMRI and PPD but these companies do not exist any longer due to the lack of service quality.

By using SERVQUAL approach, this research tries to identify the causes of poor service quality and take appropriate effort to develop the quality of service. This analysis will focus on deficiencies within the company of Trans Jogja that contribute to poor service quality perceptions by passengers and shortfall to deliver the five dimensions of service quality.

1. **Gap 1 : Not knowing what customer expect**

   Service firm executives may not always understand what features connote high quality to consumers in advance. What features a service must have in order to meet consumer needs, and what levels of performance on those features are needed to deliver high quality service. The gap between consumer expectations and management perceptions of those expectations will have an impact on the consumer’s evaluation of service quality.

   ![Figure 5.3. Gap 1](image_url)
Table 5.4 highlights the contributing factor that causes poor service quality, existing conditions, and closing gaps remedial as efforts to improve service quality.

Table 5.4. the remedial of closing gap 1

<table>
<thead>
<tr>
<th>No</th>
<th>Key contributing factor</th>
<th>Existing conditions</th>
<th>Closing gaps/remedial</th>
</tr>
</thead>
</table>
| 1  | Lack of research orientation  | • Inadequate use of research findings  
   |                           | • Lack of interaction between management and customers  | • The company doesn’t have an adequate handling management system for compiling, analyzing, and give the feed back to employees who can correct the problem.  
   |                           |                    | • There is no contact personnel with the customer to monitor what happened on the service.  
   |                           |                    | • Strategic use of complaints to identify problems in the service process, and it is suitable for the public private company such as Trans Jogja due to low on the investment of money and time.  
   |                           |                    | • Provide a contact personnel in the company organization |
| 2  | Inadequate upward communication | In many case, there is no interaction between top management and customer-contact personnel who represent the company and its services. | The company should consider the importance of contact personnel and make a directly communication between top manager and this contact-personnel. It should be no other bureaucracy between this level. |

Source: analysis

2. Gap 2: The wrong service quality standard

There are some constraints which prevent provider from delivering what the consumer expects. In numerous situations, knowledge of consumer expectations exists, but the perceived means to deliver the expectations apparently do not. Another reason for the gap established for a service is the absence of total management commitment to service quality. The gap between management perceptions and the firm’s service quality specifications will affect service quality from the consumer’s view of point.
Table 5.6 highlights the contributing factor that causes poor service quality, existing conditions, and closing gaps remedial as efforts to improve service quality.

<table>
<thead>
<tr>
<th>No</th>
<th>Key contributing factor</th>
<th>Existing conditions</th>
<th>Closing gaps/remedial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inadequate management commitment</td>
<td>The government through DIY’s county transport agency determines the minimum service standard to maintain the service quality based on general public service management in public transport</td>
<td>The company should commit to service quality from the customer point of view not based on the company standard.</td>
</tr>
<tr>
<td>2.</td>
<td>Perception of infeasibility</td>
<td>Lack of strong leadership with “service mind” that commits to service quality. It is a phenomenon that the company is still oriented on the short term profit including in Trans Jogja. In many case, top managers will not change company system of service delivery to enhance customer’s perception</td>
<td>Leadership is related to culture. Culture is something stable, but can change under pressure. The change pressure can be very helpful for a successful quality improvement. Although it is not enough just looking only at the operational level for analyzing the change process; it is important to look deeper into the process from a strategic point of view how strategy/culture is linked to the change process (Edvardsson and Enquist, 2006).</td>
</tr>
</tbody>
</table>

Source: analysis
3. Gap 3: The service performance gap

The difference between service specifications and the actual service delivery is the *service performance gap*: when employees are unable and/or unwilling to perform the service at the desired level.

![Figure 5.7. Gap 3](image)

Table 5.8 highlights the contributing factor that causes poor service quality, existing conditions, and closing gaps remedial as efforts to improve service quality.

**Table 5.8. the remedial of closing gap 3**

<table>
<thead>
<tr>
<th>No</th>
<th>Key contributing factor</th>
<th>Existing conditions</th>
<th>Closing gaps/remedial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Employee role ambiguity</td>
<td>• The employee seems to have never been involved in the development service</td>
<td>Implementing a “service culture”:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Task given such as an enforcement means that the employees have to do what the</td>
<td>• Delegation and empowerment mean that the company gives an opportunities to the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>company says</td>
<td>employees to manage their own not pushing them to do the best</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Performance measurement by giving compensation and direct financial incentives</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Eg Deal &amp; Kennedy, 1982; Gronroos, 2000; scheneider &amp; White, 2004)</td>
</tr>
</tbody>
</table>

*Source: analysis*
4. Gap 4: When promises do not match delivery

Media advertising and other communications by a firm can affect consumer expectations. The firm must be certain not to promise more in communications than it can deliver in reality. Promising more than can be delivered will raise initial expectations but lower perceptions of quality when the promises are not fulfilled. The gap between actual service delivery and external communications about the service will affect service quality from a consumer's standpoint.

![Figure 5.9. Gap 4](image)

Table 5.10 highlights the contributing factor that causes poor service quality, existing conditions, and closing gaps remedial as efforts to improve service quality.

<table>
<thead>
<tr>
<th>No</th>
<th>Key contributing factor</th>
<th>Existing conditions</th>
<th>Closing gaps/remedial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inadequate horizontal communication</td>
<td>The absence of contact personnel make the communication between marketing, advertising, operations, and human resources is inadequate. Because advertising play a role in selling service, and the contact personnel knows what customer’s expectation</td>
<td>Opening channels of communication and provide a contact personnel in the company</td>
</tr>
</tbody>
</table>

Source: analysis
F. Summary

For overall components regarding sustainability, Trans Jogja have not fulfilled all sustainable public transport indicators for economic, social, and environmental aspects. This should be caused due to:

(1) the lack of awareness towards CSR
(2) the poor mind set of creating value between multiple stakeholders, and service,

Based on the assessment from passengers and lessons learned from Varmlandstrafik AB, sustainability can be achieved if all the components of the service are clearly regulated in the contract between PTA and the operator. Sustainability is also related to the communities accessible to their necessities such as work, education, health, business, entertainment etc. Therefore, all stakeholders or institution involved in Trans Jogja operation should consider how to develop Trans Jogja so that it is integrated with other kinds of public transport and how to develop the service for a long term necessities for mobility.

The improvement should not only be based on the company view, but also to obtain the feedback from the customers through a good complaint management system. The existing condition between Trans Jogja and Varmlandstraik AB in terms of sustainability can be compared in table 5.11. Based on SERVQUAL analysis, it can be also summarized that the main problems of Trans Jogja in the service process are:
a. Lack of research orientation

No initiative research project from Dinas Perhubungan as the PTA to develop the process of service, organization, and dialogues with multi stakeholders. The PTA of Varmlandstrafik AB develop “R3” (Traveling, Research and Results) which is a form of a collaboration among multi stakeholders.

b. The absence of contact personnel and complaint handling management

Trans Jogja does not have a complaint handling management system and contact personnel to respond the complaint from customers. There is only consumer service phone but it does not effectively work. On the other hand, VTAB hires call-center company to handle customer complaints. Complaint data are connected directly to VTAB’s staff that has responsibility to give feedback to complainer and report it to operator if it is needed. If complainer felt suffer in financial loss then VTAB will pay back that loss. Complainer can reach VTAB to send complaint through telephone, short message, and email.

c. The company never involves the employee into service development

Varmlandstrafik AB never gives special treatments or rewards to bus drivers or train crews in order to deliver good service to the customers. Instead, Varmlandstrafik AB practices a way of letting the bus drivers or train crews become involved.

d. Contact Personnel should directly be linked to each department
Contact personnel usually knows what customer’s expectation is, therefore it is needed to get rid of the division/department impeding the link to contact personnel.

Table 5.11. Existing Condition of Sustainability

<table>
<thead>
<tr>
<th>COMPONENTS</th>
<th>Trans Jogja</th>
<th>Varmlandstrafik AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangible</td>
<td>Tangible becomes the main problem of the service. About 38% of the customers feel that the facilities, comfort, and cleanliness need to be improved.</td>
<td>In the VTAB’s service, tangible component is emphasized in the contract. If there is complaint about tangibles from customers, VTAB will directly check the operator.</td>
</tr>
<tr>
<td>Reliability</td>
<td>About 37% of the customers feel that the reliability of Trans Jogja is quite low. With the headway 15 minutes makes the waiting time too long. The customers also perceive that the number of bus is quite low.</td>
<td>Passengers can count on the reliability of VTAB services because VTAB provides timetable, adequate number of fleets and guarantee if thing runs with punctuality.</td>
</tr>
<tr>
<td>Empathy</td>
<td>19% of the customers consider that the components of accessibility and capacity especially for disabled people are quite low. It is about the design of bus and shelter.</td>
<td>Accessibility is clearly regulated in contract. It states that bus must be accessible by persons with reduced mobility including wheelchair users. Although the bus capacity is full on the peak hour, it is still enough to accommodate the VTAB’s passengers.</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Only 4% of the customers feels that there are problems with the crew service.</td>
<td>VTAB hires call-center company to handle customer complaints and VTAB’s staff is responsible to give response to customers.</td>
</tr>
<tr>
<td>Assurance</td>
<td>Almost no problem in safety and security assurance because Trans Jogja ensures that the driver will be operating the bus safely; there is a penalty for the driver who does not drive in a proper way and good manner</td>
<td>Driver behaviours tend to be the most important thing in the service. Therefore VTAB takes action to check the operator to ensure that the driver is in a proper condition.</td>
</tr>
</tbody>
</table>

*Source: Analysis*
CHAPTER VI
CONCLUSION AND RECOMMENDATION

A. Conclusion

1. From the analysis it can be concluded that in overall components regarding sustainability, Trans Jogja have not fulfilled all sustainable public transport indicators for economic, social, and environmental aspects. This is due to the lack of awareness towards CSR, the mind set of creating value between multiple stakeholders, and service. Trans Jogja service has not obtained sustainability. Based on the assessment from passengers and lesson learned from Varmlandstrafik AB, sustainability can be achieved if all the components of service are clearly regulated in the contract between PTA and the operator. Sustainability is also related to how communities access their necessities to work, education, health, business, entertainment etc. Therefore, all stakeholders or institutions involved in Trans Jogja operation should consider how to develop Trans Jogja so that it is integrated with other kinds of public transport and also how to develop the service for a long term necessities for mobility.

The things that can be learned from Varmlandstrafik AB is that the change or reform of public transport authorities is important in order to develop policies. The dialogues among multiple stakeholders aimed to create a change pressure in the Swedish Public Transport Industry due to the contribution of change pressure prove that the dialogues help a successful quality improvement.
However, the obstacle on this research is that there is no standard for sustainability, therefore this research still cannot find how bad is the problem of sustainability in public transport.

2. Sustainability of Trans Jogja service

Based on the analysis by SERVQUAL model, Trans Jogja faces many problems in five dimensions of service which are tangible, reliability, assurance, responsiveness, and empathy, and the main problems of Trans Jogja in the service process are:

a. Lack of research orientation
b. The absence of contact personnel and complaint handling management
c. The company never involves the employee into service development
d. Contact Personnel should directly be linked to each department

The lesson from Varmlandstrafik AB shows that the customer involvement is important in developing service through complaint handling management system. The necessity for contact personnel who responsible for customer complaint directly and a sort of research to develop the service process which involved the customers as the value creator are absolutely needed.
B. Recommendation

1. To obtain sustainable public transport Dinas Perhubungan as the PTA of Trans Jogja should also manages and improve the impacts to its society and environment to generate value for both stakeholders and shareholders (while maintaining profit) by innovating its strategies, organization, and operations as Varmlandstrafik AB has been done. As mentioned previously that sustainability also necessitates the transformation of mindset and commitment of the leadership and organizational performance to include key stakeholders, it is not a simple thing to be implemented in Indonesia particularly in public transport organization. A deeply observation in the level of government and parliament about how much they pay attention towards sustainability and what initiatives are running out nowadays is required.

2. Transportation Research Board’s Sustainable Transportation Indicators Subcommittee has launched the indicator for sustainable transport, but there is no standard, target, and goals regarding the value to measure the sustainability. This should be formulated for better evaluation.

3. Regulation for sustainable transport or sustainable public transport should be formulated, and the regulation must be open, honest, and effective, but not so detailed or heavy that it incites the potential for corrupt practices.
4. There is no absolute standard for sustainability but, thinking of sustainability, the government should formulate the goals and target to measure how sustainable the development in Indonesia is, and the government can be oriented upon MDGs.
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www.fordubbling.se
www.tranjogja.net
### KUESIONER PENUMPANG ANGKUTAN TRANS JOGJA

#### DATA RESPONDEN:

**a. Jenis Kelamin:**
- [ ] Laki-laki
- [ ] Perempuan

**b. Umur:** …… tahun

**c. Pendidikan terakhir:**
- [ ] SD
- [ ] SMP
- [ ] SMA
- [ ] Diploma
- [ ] S1
- [ ] S2
- [ ] S3
- … lain-lain, ……………

**d. Pekerjaan:**
- [ ] PNS
- [ ] Pegawai Swasta
- [ ] Wirausaha
- [ ] ibu RT
- [ ] TNI/Polri
- [ ] Pelajar/mahasiswa

**e. Kepemilikan kendaraan**

<table>
<thead>
<tr>
<th>(dalam keluarga)</th>
<th>Sepeka</th>
<th>= ……. buah</th>
<th>Sepeda motor = ……. buah</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobil</td>
<td>= ……. buah</td>
<td>Tidak punya</td>
<td></td>
</tr>
</tbody>
</table>

**f. Apakah anda pengguna tetap:**

<table>
<thead>
<tr>
<th>dari angkutan perkotaan</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Ya, selama seminggu minimal berapa kali ………………</td>
</tr>
<tr>
<td>[ ] Tidak</td>
</tr>
</tbody>
</table>

**g. Penghasilan per bulan**

<table>
<thead>
<tr>
<th>(untuk pelajar/mahasiswa)</th>
<th>&lt; 500 ribu</th>
<th>500 ribu - 1 juta</th>
<th>1,0 - 1,5 juta</th>
<th>1,5 - 2,0 juta</th>
<th>&gt; 2,0 juta</th>
</tr>
</thead>
<tbody>
<tr>
<td>(jumlah uang saku per bulan)</td>
<td>2,0 - 2,5 juta</td>
<td>2,5 - 3,0 juta</td>
<td>3,0 - 3,5 juta</td>
<td>3,5 - 4,0 juta</td>
<td>&gt; 4,0 juta</td>
</tr>
</tbody>
</table>

**h. Pengeluaran untuk transportasi per bulan**

<table>
<thead>
<tr>
<th>&lt; 50 ribu</th>
<th>50 - 100 ribu</th>
<th>100 - 150 ribu</th>
<th>150 - 200 ribu</th>
<th>200 - 250 ribu</th>
<th>250 - 300 ribu</th>
<th>300 - 350 ribu</th>
<th>350 - 400 ribu</th>
<th>400 - 450 ribu</th>
<th>450 - 500 ribu</th>
<th>500 - 550 ribu</th>
<th>&gt; 550 ribu</th>
</tr>
</thead>
</table>

**i. Alasan apa anda menggunakan menggunakan angkutan perkotaan, ……………………………………**

---

### A. Pilihan Pelayanan (sesuai keinginan anda)

1. Sistem pembayaran tiket menggunakan:
- [ ] Uang langsung
- [ ] Beli karcis di loket

2. Tempat pembayaran tarif angkutan:
- [ ] Bayar di halte
- [ ] Bayar di atas angkutan

3. Besaranya tarif:
- [ ] Sama
- [ ] Berdasarkan jarak/zone

4. Tempat duduk angkutan perkotaan:
- [ ] Berjajar
- [ ] Berhadapan

5. Lokasi berhenti angkutan perkotaan:
- [ ] Halte saja
- [ ] Sembangar tempat

6. Pelayanan pada hari libur:
- [ ] Ditambah jam operasi
- [ ] Dikurangi jam operasi

---

### B. Pilihan Pelayanan Kuantitatif (sesuai keinginan anda)

#### 1. Berapa jarak ideal berjalan kaki menuju tempat perhentian angkutan perkotaan:

<table>
<thead>
<tr>
<th>Jarak (m)</th>
<th>0 - 300 m</th>
<th>300 - 600 m</th>
<th>600 - 900 m</th>
<th>900 - 1,200 m</th>
<th>&gt; 1,200 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>………. m</td>
<td>………. m</td>
<td>………. m</td>
<td>………. m</td>
<td>………. m</td>
<td>………. m</td>
</tr>
</tbody>
</table>

#### 2. Berapa waktu tunggu ideal di halte angkutan perkotaan sampai dengan angkutan datang:

<table>
<thead>
<tr>
<th>Waktu (menit)</th>
<th>0 - 5 menit</th>
<th>5 - 10 menit</th>
<th>10 - 15 menit</th>
<th>15 - 20 menit</th>
<th>&gt; 20 menit</th>
</tr>
</thead>
<tbody>
<tr>
<td>………. min</td>
<td>………. min</td>
<td>………. min</td>
<td>………. min</td>
<td>………. min</td>
<td>………. min</td>
</tr>
</tbody>
</table>

#### 3. Waktu tempuh perjalanan penumpang dengan angkutan perkotaan:

- [ ] 15 - 30 menit
- [ ] 30 - 45 menit
- [ ] 45 - 60 menit
- [ ] 60 - 75 menit
- [ ] 75 - 90 menit
- [ ] ………. min

#### 4. Rentang waktu pelayanan angkutan perkotaan dalam seharian:

<table>
<thead>
<tr>
<th>Waktu (jam)</th>
<th>5.00 - 22.00</th>
<th>05.00 - 22.00</th>
<th>05.00 - 24.00</th>
<th>06.00 - 22.00</th>
<th>06.00 - 24.00</th>
<th>24 jam</th>
</tr>
</thead>
</table>

#### 5. Jarak jauh di luar jadwal operasional angkutan perkotaan dengan jalur yang sama:

<table>
<thead>
<tr>
<th>Jarak (km)</th>
<th>5 - 10 menit</th>
<th>10 - 15 menit</th>
<th>15 - 20 menit</th>
<th>20 - 25 menit</th>
<th>25 - 30 menit</th>
<th>………. km</th>
</tr>
</thead>
</table>

#### 6. Persentase antar rute dan pelayanan yang masih bisa diterima:

<table>
<thead>
<tr>
<th>Persentase (%)</th>
<th>maks. 5%</th>
<th>maks. 4%</th>
<th>maks. 3%</th>
<th>maks. 2%</th>
<th>maks. 1%</th>
<th>………. x</th>
</tr>
</thead>
</table>

---

APPENDIX 2.1
C. Pilihan Pelayanan Kualitatif (sesuai keinginan anda)

1. Halte perhentian angkutan yang anda inginkan :
   a. Beratap : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   b. Tertutup : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   c. Ada kursi tunggu : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   d. Ada pengatur udara (AC/kipas angin) : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu

2. Sistem Informasi angkutan perkotaan :
   a. Jadwal : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   b. Rute trayek : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   c. Tempat henti : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu

3. Penumpang :
   a. Bus menarik : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   b. Awak rapi & bersanRENAN : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu

4. Fasilitas dalam angkutan perkotaan :
   a. Pelayanan cacat : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   b. PSK dan pemadam : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   c. Pengatur udara (AC) : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   d. Perangkat suara untuk informasi : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu
   e. Hand grip (pegangan berdiri) : 1 Sangat Perlu 2 Perlu 3 Cukup Perlu 4 Kurang Perlu 5 Tidak Perlu

D. Berilah tanda (✓) pada pernyataan yang sesuai dengan kondisi anda tentang penilaian terhadap kualitas yang ada saat ini dan tingkat kepentingan (keinginan anda) terhadap pelayanan bus perkotaan :

<table>
<thead>
<tr>
<th>PELAYANAN BUS PERKOTAAN</th>
<th>Kualitas saat ini</th>
<th>Tingkat Kepentingan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sangat baik</td>
<td>= 5</td>
<td>Sangat penting penging = 5</td>
</tr>
<tr>
<td>Baik</td>
<td>= 4</td>
<td>Penting = 4</td>
</tr>
<tr>
<td>Cukup baik</td>
<td>= 3</td>
<td>Cukup penting = 3</td>
</tr>
<tr>
<td>Sangat buruk</td>
<td>= 2</td>
<td>Kurang penting = 2</td>
</tr>
<tr>
<td>buruk</td>
<td>= 1</td>
<td>Tidak penting = 1</td>
</tr>
</tbody>
</table>

Kriteria kepuasan

<table>
<thead>
<tr>
<th>Kualitas saat ini</th>
<th>Tingkat kepentingan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>
APPENDIX 2.2

THE LOCATION OF TRANS JOGJA'S SHELTER

<table>
<thead>
<tr>
<th>No.</th>
<th>SHELTER</th>
<th>No.</th>
<th>SHELTER</th>
<th>No.</th>
<th>SHELTER</th>
<th>No.</th>
<th>SHELTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Giwangan</td>
<td>12</td>
<td>Wirobrajan</td>
<td>23</td>
<td>Cik Di Tiro</td>
<td>34</td>
<td>Jetis</td>
</tr>
<tr>
<td>2</td>
<td>Kotagede</td>
<td>13</td>
<td>Gedong Kuning</td>
<td>24</td>
<td>Bethesda</td>
<td>35</td>
<td>Monjali</td>
</tr>
<tr>
<td>3</td>
<td>Sorosutan</td>
<td>14</td>
<td>Gembira Loka</td>
<td>25</td>
<td>Urip Sumiharjo</td>
<td>36</td>
<td>Kentungan</td>
</tr>
<tr>
<td>4</td>
<td>Museum Perjuangan</td>
<td>15</td>
<td>SGM</td>
<td>26</td>
<td>Balai Kota</td>
<td>37</td>
<td>Condong Catur</td>
</tr>
<tr>
<td>5</td>
<td>Pugeran</td>
<td>16</td>
<td>Kusuma Negara</td>
<td>27</td>
<td>Ambarukmo</td>
<td>38</td>
<td>UPN</td>
</tr>
<tr>
<td>6</td>
<td>Basen</td>
<td>17</td>
<td>Mandala Kridosono</td>
<td>28</td>
<td>Janti</td>
<td>39</td>
<td>Makro</td>
</tr>
<tr>
<td>7</td>
<td>Diklat PU</td>
<td>18</td>
<td>Kridosono</td>
<td>29</td>
<td>Alfa</td>
<td>40</td>
<td>UNY</td>
</tr>
<tr>
<td>8</td>
<td>Purawisata</td>
<td>19</td>
<td>Malioboro</td>
<td>30</td>
<td>Maguwo</td>
<td>41</td>
<td>RS. Panti Rapih</td>
</tr>
<tr>
<td>9</td>
<td>Gondoman</td>
<td>20</td>
<td>Samsat</td>
<td>31</td>
<td>Kedaulatan Rakyat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Senopati</td>
<td>21</td>
<td>Sudirman</td>
<td>32</td>
<td>Kalasan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Suronatan</td>
<td>22</td>
<td>Mangkubumi</td>
<td>33</td>
<td>Prambanan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Dinas Perhubungan (2008)

THE NUMBER OF TRANS JOGJA’S PASSENGERS ON 2008

<table>
<thead>
<tr>
<th>NO</th>
<th>MONTH</th>
<th>PASSENGERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FEBRUARY</td>
<td>162,849</td>
</tr>
<tr>
<td>2</td>
<td>MARCH</td>
<td>288,105</td>
</tr>
<tr>
<td>3</td>
<td>APRIL</td>
<td>264,562</td>
</tr>
<tr>
<td>4</td>
<td>MAY</td>
<td>306,687</td>
</tr>
<tr>
<td>5</td>
<td>JUNE</td>
<td>350,360</td>
</tr>
<tr>
<td>6</td>
<td>JULY</td>
<td>433,426</td>
</tr>
<tr>
<td>7</td>
<td>AUGUST</td>
<td>430,320</td>
</tr>
<tr>
<td>8</td>
<td>SEPTEMBER</td>
<td>373,656</td>
</tr>
<tr>
<td>9</td>
<td>OCTOBER</td>
<td>70,973</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>2,680,938</td>
</tr>
<tr>
<td></td>
<td>AVERAGE</td>
<td>297,882</td>
</tr>
</tbody>
</table>

Source: Dinas Perhubungan (2008)