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Sajha Yatayat

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Scaling up Sajha Yatayat's Public Transport Services in Kathmandu Valley – A Proposal

# Background

Sajha Yatayat is a cooperative established in 1961 to provide public transportation services in Nepal. Although it provided its services throughout Nepal for many years it was forced to close its operations in 2007 due to operation challenges. It has however since been revived through the initiative of its members and the Government of Nepal to address the growing problem of traffic congestion in the valley. Sajha Yatayat, which restarted its transport operations in April 2013, strives to provide efficient and effective public transportation to commuters in the Kathmandu Valley and also cater to inter-district and cross-border passengers.

Our initial task in reviving services is to concentrate on relieving traffic in Kathmandu Valley, in a manner that will help commuters as well as the economy and the environment. We seek to provide exemplary service, seeking to extend it to other players in the transport sector by developing a network that has the interests of the public at its heart. We work within the goals set by the Government of Nepal and in cooperation with private sector transport companies, to provide quality public service transport to the citizens of Nepal.

# Public Transportation in Kathmandu and Role of Sajha Yatayat

It is estimated that out of the approximately 3.4 million one-way person trips made by Kathmandu Valley residents each day, nearly 41% percent are made on foot, while almost 28% are made on public transport (MoPIT/JICA, 2012 and SMEC, 2013). The travel pattern is highly radial with most trips starting or ending in the central business district (CBD) of Kathmandu. The public transport service in Kathmandu Valley is fully operated by private sector and self-financed i.e. without any government subsidies. Operators are organized into about 100 route and mode-specific associations and operate along over 200 routes (see Table 1). The share of low occupancy vehicles such as minibuses, microbuses and tempos operating within Kathmandu Valley accounts for 94% of total public transport vehicles; while share of large buses is only 6% (MoPIT/JICA, 2012)

**Table 1: Public Transport Service in Kathmandu Valley**

|  |  |  |  |
| --- | --- | --- | --- |
| Type of Vehicles | Passenger Capacity | Number of Routes | Number of Vehicles |
| Tempo | 11-13 | 21 | 913 |
| Micro Bus | 10-16 | 90 | 2,036 |
| Minibus | 26-35 | 107 | 2,036 |
| Large Bus | 35-50 | 2 | 320 |
| Total |  | 220 | 5,305 |

Because of the absence of a formal public transportation system and lack of proper monitoring and guidance from the government, the quality of public transport service in Kathmandu Valley is poor and inefficient. There are no well defined schedules, and the vehicles are generally poorly maintained, dirty, overcrowded and uncomfortable. As vehicles compete with one another for passengers, speeding is often a problem and vehicles wait for a long time at stops resulting in vehicle stacking and congestion. A survey conducted by CEN/CANN (2011) showed that about 61.7% of female respondents were uncomfortable with the space in public transport because of overcrowding; 57.7% of passengers were not happy with the travel time in public transport; 69.1% of surveyed passengers perceive that the public transport drivers practice reckless driving making travel uncomfortable and unsafe; 24.9% passenger perceived service as unreliable; and 30.5 % of people said that they have to wait for more than 10 minutes during morning peak hour to get a ride.

In order to improve the standards of public transportation system in Kathmandu and offer better services to the public, in April 2013, Sajha Yatayat once again resumed its services with 16 large 55-seater buses with Euro 3 emission standards. Although Sajha Yatayat's services, is currently limited to two major routes in the city, this has brought new hopes for improving the quality public transport service in the city. The main objective of the Sajha Yatayat is to operate as model public transport service provider providing efficient, affordable and safer services to the city dwellers.

Some of the key changes that Sajha Yatayat has introduced in public transport sector is as follows:

* The buses are large, new and environment friendly (EURO III standards)
* The routes go from one end of the city to another instead of ending in the central business district, thus reducing congestion in central Kathmandu
* Buses follow a schedule and do not wait for too long for passengers
* Buses only stop at designated stops
* Buses operate from early in the morning till late at night (6 am to 10 pm)
* All buses are fitted with close circuit cameras for safety
* Passengers are required to get on through the back door and get off through the front door.
* Drivers and driver assistants are well trained to provide customer-friendly services
* One of the drivers and several of the conductors are women.

# Sajha Yatayat’s Present Status

## 3.1 Legal Basis

Sajha Yatayat is a cooperative formed under the Cooperative Act, 2048 and registered with the Department of Cooperative. Government of Nepal owns 84.27% of the total shares while 4.71% of the shares is owned by organizations and institutions and 11.02% is owned by individuals.

## 3.2 Structure

The Sajha Yatayat General Assembly, which consists of 228 members, provides overall guidance and approves major policies and plans. The General Assembly meets once a year and elects an Executive Board every three years. The Board, which consists of five elected members and two representatives of the Government of Nepal – Registrar of the Department of Cooperatives and Director General of Department of Transport management – is responsible for strategic planning, supervision and monitoring. The day to day management is run by a small group of core staff, headed by an Executive Officer. Many of the specific jobs, such as drivers, bus assistants (conductors), security, and janitors, are out sourced to third party companies. This keeps the system as a whole lean and efficient while having specialized companies provide services to Sajha Yatayat in a professional manner. This will also minimize labor dispute which Sajha Yatayat has constantly faced in the past.

**Sajha Yatayat's Organizational Structure**

## 3.3 Human Resource

Sajha Yatayat currently has 16 core staff to manage its day to day operations. In addition, it has outsourced the services of drivers, conductors and security guards.

## 3.4 Financial Status

### Assets

Sajha Yatayat has fixed assets in the form land and buildings at Pulchowk, The fixed assets worth is NRs. 166,119,611.76 as per the audited report for the year 2068-69, which is based on valuation done on historical cost basis.

In addition, Sajha Yatayat has 16 buses and a pickup truck which are all one year old. It also has inventory of worth NRs. 48,856,309.36, which includes inventories of all categories of moving, slow moving, non-moving, obsolete and scrap. As most of these are spare parts of the old Japanese buses, they may not be used in the future.

### Liabilities

There is current liability of Rs. 52,589,269.91, which does not include the rent received in advance. Among this there is interest of NRs. 51,765,482.41.

### Revenue

The total revenue for the first year of operation (Baishakh to Chaitra 2070 from bus operations was NRs. 43,440,658.

### Expenditure

The total expenditure during the first year of operation (2071) was NRs. 48,262,600.08.

## 3.5 Operation and Maintenance System of Sajha Yatayat

The core staff of Sajha Yatayat and the drivers and conductors who serve Sajha but were recruited by Subidha Seva Pvt. Ltd. are responsible for operation and maintenance of the buses.

# Route System in Kathmandu Valley and Targeted Routes of Sajha Yatayat

The current public transport route network in Kathmandu Valley is complex and consists of approximately 200 routes as follows (KSUTP, 2013):

* **Bus**, 7 Routes prior to reintroduction of Sajha Yatayat, which added 2 more routes. These routes are generally on the higher order roads. Bus routes from the west and east use National Highways H02 and H03 respectively, while services run in both directions around the Ring Road (H16). A further large bus service links Dakshinkali to the City Centre along Feeder Road 022. Sajha Yatayat runs two services Kalanki – CBD \_Airport and Satdobato – CBD – Maharajgunj.- New Bus Park
* **Minibus**, 93 Routes. Microbus routes run on the National Highways and Feeder roads in the Valley. They are generally radial, linking outlying areas with the City Centre.
* **Microbus,** 73 Routes. The coverage of the microbus network is similar to the minibus network, with slightly greater coverage within, and north-of, the Ring Road than the mini-bus network. In contrast the microbus network provides slightly less coverage to southern and eastern valley areas.
* **Tempo**, 20 Routes, which are generally within the Ring Road.

According to KSUTP, the main problems with the existing public transport routes in Kathmandu are as follows:

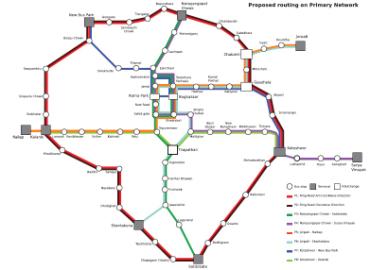
* **Duplication of routes -** On most of the main corridors there are duplicate routes operated by tempos, micro-buses and minibuses. In many cases permits have been issued for routes that only show minor variations from existing routes. Up to twenty minor variations on a route have been observed.
* **Inefficient vehicle type -** The existing system uses many small tempos and microbuses to operate line haul services on high demand corridors. The high numbers of small, low-capacity vehicles operating on the main corridors results in increased traffic congestion and overall inefficiency of the public transport system.
* **Concentration of route terminals in the City Centre** - Roadside terminals in the City Centre result in obstruction to general traffic flow due to parked vehicles blocking traffic lanes and the movement of pubic transport vehicles into and out of loading areas.
* **Poor passenger facilities at City Centre terminals** - The dispersed location of city centre roadside terminals (Sahid Gate, NAC & Ratna Park) results in significant walking distance for passengers who need to transfer between routes. There are negligible facilities such as seats and shelters at these terminals.
* **Poor quality of service -** Household interviews by JICA revealed that commuters with the option to use private transport elected not to use public transport due to:
  + Travel Time longer when Public Transport is used
  + Irregular operation without timetable
  + Delays caused by bus waiting for full capacity before departure
  + Overcrowding
  + Waiting time at bus stops

In contrast existing bus users identified the following as the main aspects of the existing system that required improvement:

* + Reduced travel time
  + Lower fare
  + Improved safety
  + Comfort in vehicle
* On some routes there is an oversupply of vehicles, requiring use of the “Dial” system to regulate the days on which specific vehicles may operate, and conversely there is insufficient capacity on other routes.

Recently, the Kathmandu Sustainable Urban Transport Project (KSUTP)has proposed a three-tier hierarchy of public transport routes based on the demand and width of the road infrastructures. The project has proposed 8 primary routes, 16 secondary routes and 40 tertiary routes plus 2 in historic areas. It has envisaged to operate higher capacity mass transit service with 12 meter or 18 meter articulated buses with dedicated bus-lanes, 9-10 meter buses in secondary routes providing feeder service to primary routes and low occupancy vehicles such as tempos, microbus and minibus in tertiary routes.

**Proposed Primary Routes by KSUTP**



Currently routes are assigned by the Department of Transport Management through a complex and unscientific process and assignment of routes is not done until the vehicles are imported. Sajha Yatayat proposes to operate its services in the primary routes defined by KSUTP. This is mainly because of the following reasons:

* As there are very few large buses in the current public transport network, Sajha Yatayat can import good quality large buses to add value to the system
* As the primary routes have a demand of over 100,000 passengers per day, these routes will be feasible for the large buses that Sajha Yatayat wants to import.
* As the current routes that are being served by Sajha Yatayat have significant passenger demand and the frequency of Sajha buses is quite low, it would make sense to add new buses to the current route so as to increase bus frequency and demonstrate a model bus transit system.

# 5. Issues, Challenges and Prospects for Sajha Yatayat

**Challenges**

Urban transport and its management is one of the most important elements in planning, and development of a sustainable city. Land use patterns and built environments shape the demand for travel. Hence, carefully integrated and coordinated transportation and urban development is essential to ensuring a sustainable future environmentally, socially and economically.

Rapid urbanization of the Kathmandu valley, haphazard linear extension of the settlements from roadside towards inland agricultural land, increasing urban sprawl without basic amenities, and general practice of informal development by landowners have pressurized road networks and the transportation system. With the present trend of growth, the 2.6 million population of the valley (2011 figures) is slated to touch 4 million by the end of 2020.

Vehicular population is growing at the rate of 12% annually in the valley. Out of a total of 444,000 vehicles registered in the ‘Bagmati’ zone, most ply in the urban areas of the Kathmandu valley. This number is far more than the carrying capacity of existing roads. Two wheelers constitute 74% of registered vehicles. Easy credit and the dearth of reliable and comfortable public transportation have spurt growth in ownership of private vehicles such as small cars and motorcycles. Compared to the rapid growth in population and vehicle registration there is no proportionate extension of urban roads. The earlier 1,319 km of road network inside the valley has not seen much extension in the last decade. The overall result has multiple negative consequences. The multimodal and burgeoning transportation system (bus, van, car, motorbike, cycle including pedestrians) use the same limited road. An increasing number of vehicles are old and receive little or no maintenance. Low quality fuel along with poor condition of road network has added to the scenario. Increased traffic congestions, accidents, and incidents of road rage have multiplied manifold. According to Kathmandu Valley Traffic Police, 67% of all types of accidents in three principal cities of the valley (Kathmandu, Lalitpur and Bhaktapur) involve pedestrians and the casualty rate is as high as 36%, followed by motorcycle riders (22%) and cyclists (10%). Vehicular emission due to increasing number of automobiles, lack of timely maintenance and poor transport management alone accounts for 38% of total PM10 concentration in the valley. It has caused respiratory diseases such as bronchitis in children, chronic bronchitis, and asthma attacks. The socio-economic loss is significantly high. The cost of morbidity resulting from PM10 was found to be NRs. 180 million and total health damage to be NRs. 210 million. It is estimated that NRs. 0.5 billion per year in tourism revenue is lost due to air pollution in Kathmandu valley.

With the demise of public operated services, public transport is now exclusively provided by the private sector. Mostly operating are micro buses and mini buses on various assigned routes by private operators. Buses are often overcrowded and are available on profitable routes only. Routes, which are not deemed profitable are neglected and do not see much frequency in availability of privately-operated buses. Children, women and the elderly population suffer due to lack of poor law enforcement by the government. Such services are also unreliable, dangerous and inconvenient.

The existing infrastructure and public transportation facilities do not adequately meet the mobility needs of the urban population, both in quality and quantity. Moreover, lack of funds for new projects and maintaining old and unreliable vehicles has led to services falling far below demand. Inadequate road space and poor traffic management have contributed to increasing levels of air and sound pollution and unsafe roads. As a result, the urban transport problem is at its most intractable in the valley.This emphasizes the need for greater attention from all concerned stakeholders to support a public transport-friendly plan, program and policy.

**Prospects**

As Kathmandu continues to expand the need for public transportation services will also expand accordingly. Furthermore, currently only 28% of the trips are made on public transportation. However, as the streets of Kathmandu become more and more congested, more people may choose to use public transport services, provided that they are convenient and safe. Therefore if Sajha Yatayat is able to provide efficient and effective public transportation there will be growing demand for its services.

Currently there are very few large buses operating in Kathmandu. As many of the main streets in Kathmandu have been recently expanded, there is room for more big buses in the city. The government has also stated its wish to promote large buses in Kathmandu.

The ADB supported KSUT project has identified 8 primary routes in Kathmandu Valley. These routes can be suitable for operating Sajha buses.

Therefore the prospects for Sajha Yatayat to expand its services are good.

# Vision, Mission and Strategy of Sajha Yatayat

## 6.1 Mission

SajhaYatayat’s mission is – ***To be the leading transport agency that provides affordable, efficient and environmentally sustainable urban and inter-district public transportation services in Nepal, as well as flag-carrier cross border service to regional cities.***

The specific objectives in Sajha Yatayat’s operations are

1. to provide efficient, affordable and sustainable mobility for social, educational, economic and recreational activities,
2. to provide better quality services i.e. to create public transport services those are service-oriented rather than profit-oriented, and
3. to provide an environmentally sustainable transport system.

## 6.2 Strategy

To achieve the mission statement Sajha Yatayat must embark on with certain some short-, medium- and long-term objectives as follows:

### Short-term Strategy (1 to 2 years):

The short-term plan of Sajha Yatayat is to revive its operations in Kathmandu Valley's trunk routes, with the aim of generating public goodwill as well as visibility, while maximizing the sustainability factor before the organization enters into a more profitably restructured entity in the medium- and long-term.

* Sajha Yatayat will start its operation with 16 buses in two corridors in the Kathmandu Valley in Phase I to demonstrate its services to the public.
* Sajha Yatayat will utilize its own resources to procure its initial fleet of 16 buses
* Fare collection system will be manual ticketing system including weekly/monthly card system. However, Sajha will also initiate study of electronic fare collection system and GPS tracking system
* Collaboration with other transport entrepreneurs to provide feeder services to Sajha Yatayat will be explored
* Initiate route planning for the expansion of Sajha Yatayat services in Kathmandu Valley
* Initiate the process of expanding its fleet to provide more frequent services in the two routes as well as other potential routes, and explore financing option for fleet expansion

### Medium-term strategy (2 to 5 years):

After initiating its operations and gaining experience as well as credibility, in the medium term, Sajha Yatayat will seek to expand its services and partner with other entrepreneurs to provide better services. It will also introduce more innovations such as Intelligent Transport System (ITS) and explore the possibilities for Bus Rapid Transit (BRT) systems.

* Expand urban services in Kathmandu Valley in 3 to 5 corridors.
* Collaborate with other small transport entrepreneurs for feeder services.
* Introduce electronic fare collection system and ITS using latest technology- GPS tracking system.
* Establish Command Control Center.
* Initiate inter-cities or inter-district bust transport services in Nepal.
* Optimize the usage of the company's Pulchowk depot and set up new well equipped depot in cost-effective locations to accommodate growing number of fleets.
* Explore the possibility of operating a Bus Rapid Transit system in Kathmandu valley.
* Explore the possibility of using alternative fuel vehicles to further reduce the carbon footprint of Sajha Yatayat.

### Long-term (5 to 10 years):

Sajha Yatayat will provide environmental friendly, efficient and integrated multimodal transport system and operate from various cities and regions of Nepal.

* Initiate flag-carrier services to various cities of neighboring countries (India, China, Bhutan and Bangladesh).
* Operate Bus Rapid Transit system in Kathmandu Valley and possibly in other major cities.
* Consolidate its services and its partnership with other transport entrepreneurs to provide the services of a full public transport network in Kathmandu Valley and possibly in other major cities

# Business Plan/Action Plan (Generally Next Five Years)

## Major Programmes and Projects

Sajha Yatayat is currently operating 16 buses on two routes in Kathmandu. However, the number of buses on these routes is not adequate and there is demand for Sajha Yatayat's services in other places as well. Therefore, over the next five years, Sajha Yatayat plans is to expand the fleet and improve its services, so as to make a visible impact in Nepal's public transportation system. It will also try to forge partnership with other private entrepreneurs to work jointly to improve services.

Besides bus operations, Sajha Yatayat is also renting its property at Pulchowk to generate additional revenue for the organization. Over the next five years, Sajha Yatayat will prepare plans for best utilization of the property.

## Investment, Revenue and Profit Targets

The major investment for Sajha Yatayat over the next five years will be additional buses. The exact number of buses to be added over the next five years will be determined based on demand and opportunities in the market and relevant government policies. However, in the first phase about 25 buses will be added to the current fleet.

Besides buses, Sajha Yatayat will also invest in systems for improving its efficiency and effectiveness. These systems may include ITS and automated fare collection systems.

With increased services and effective management, Sajha Yatatat is expected to increase its revenue as well. The target will be to ensure that the bus operations are able to operate on a sustainable manner. While profit is the main driver of Sajha Yatayat, the organization will be run in a professional manner and efforts will be made to maximize revenue and cut costs so that Sajha Yatayat can demonstrate that good public transportation system can be provided in a sustainable manner.

## Borrowing Capacity for Next 10 years

As mentioned earlier, Sajha Yatayat will operate at a slight profit margin so as to ensure that the organizaiton is financially sustainable and it maintains its capacity to borrow for further growth.

## Institutional Development Plan (Organizational Structure, HR Plan etc.)

Although the institution will continue to grow with growing fleet size, addition of staff will be kept to a minimum so as to increase efficiency. The staff, will be given regular training to increase their productivity.

# 8 Proposed Project

## Proposed Route and Passenger Analysis

Sajha Yatayat is currently running its service in two routes passing through CBD: i) Lagankhel to Gongabu ii) Kalanki to Airport with an average daily ridership of 8,000 per day. However, because the number of buses is not sufficient, the time gap between buses is about 30 minutes. As a result, people generally do not wait for a Sajha bus but take whatever option is readily available. Furthermore during peak hours, the buses are extremely crowded. Clearly, there is a need to increase the frequency of buses in these routes. Therefore it is proposed that the new buses be added to the same routes so as to make the time interval between buses about 10 minutes. Other route options are Ring Road and road connecting Kathmandu and Bhaktapur. However, because the Ring Road is under construction, it will be difficult to operate buses along the Ring Road for the next few years.

## Bus Models

Sajha Yatayat plans to add large buses similar to the ones it currently has in its fleet. Therefore, standard size buses as per the specifications issued by the Ministry of Urban Development, Government of India will be procured. The buses will have a length of about 12 meters and will have seating capacity of about 45. The exact model of the buses will be determined based on competitive bidding. Sajha Yatayat will also explore options for slightly smaller buses (length of about 9 to 10 meters and seating capacity of about 36) for use in routes that are not very popular or for use during off peak hours.

## Other Investment Components

The only major investment will be in the buses.

## Proposed Operation, Maintenance and management

Sajha Yatayat will use the existing operation, maintenance and management system for the new buses. Sajha Yatayat adopts the following working principles to operate its city buses for the city commuters.

### Bus Service and Bus Design

Kathmandu valley bus riders feel that the physical design and layout of the current standard floor buses that they ride every day is satisfactory. Further improvements in the bus design are to be introduced in the new buses for more satisfaction of the passengers. Three service-related criteria are important to assess the customer’s satisfaction; they are (a) Is the design safe? (b) How does the design affect the comfort of my trip? (c) How will it affect reliability of service?

***Safety***  - A threshold concern for any type of transportation, safety is particularly important to bus riders, many of whom choose to take the bus instead of the other means of transportation.

***Comfort*** - Comfort is a broad term that involves a range of bus features. The size and location of doors, the number of seats and their orientation, and the position of the wheelchair entrance all affect riders' ease of moving into, through and off of the bus, their physical comfort while seated or standing, and their sense of personal space.

***Service reliability*** - Sajha Yatayat has vision to bring improvement in the frequency of services through reducing dwell times at bus stops. Ergonomically designed entrance, wider doors and quicker wheelchair boarding will speed passenger boarding and exiting. Quicker and more reliable dwell times help maintain even spacing between buses and reduce total run time, producing less bus bunching and better service.

### Stations

Sajha Buses operate following the fixed stoppages to avoid unnecessary traffic congestion and cater the maximum passengers. The stoppages are at three types of stations:

* Simple Stations: They are located at about every 500 meters. At these stations passengers can purchase tickets and enter the system.
* Intermediate Stations: These stations are the contact points between the feeder buses and the main lines. Their objective is to provide smooth, fast and effective interaction between the mainline and feeder buses.
* Main Line Stations: Though these types of stations do not exist but for the future concern when the urban transport system will develop, Sajha Yatayat has a vision to operate its buses for the stations located at the beginning and end points of the main line routes. In these stations transfers are accomplished among mainline buses, feeder and transportation routes. These stations are to be provided with bicycle parking facilities.

### Fare Collection System

Sajha is operating its buses with the traditional paper print tickets. This system will be partially replaced by prepaid method of payment introducing magnetic cards or other electronic system. In such system, the passenger purchases a smart card at the ticket office located at easily accessible area. The smart card can be yellow for one trip, red for two trips, or the capital card that permits several trips. It permits multiple boarding reducing dwell times, bus operating cost, and travel times for passengers.

### Advanced Control System

An advanced control system is a very important part of the City Bus operation system. Each bus will be equipped with a Global Positioning System (GPS) receiver to report the bus location, a computer that contains the schedule, a tracking communication system that shares information with a control center located in the control office, police, and a transponder that will send the information to receivers at the entrances and exits of every station. This communication system will provide real time information and is the basis for the control of the system. This makes it possible to adjust the schedule and identify possible new routes into the system.

### Maintenance System

Sajha has adopted out sourcing modality for the major maintenance except emergency breakdowns. The emergency repair works are being tackled by its own staffs. For the new purchases of the buses, Sajha will adopt lifecycle costing method of bid evaluation where the maintenance will also be included (to be managed by the supplier). But the quality of maintenance and the operations will be supervised by well qualified technical persons.

## HR Plan

A few core staff will be added to manage the new buses, while the driver and conductors will be outsourced as it is done currently. Overall, the HR Plan will be as per the organizational structure shown in Section 3.2.

## Investment Plan (Debt and Equity)

For the new buses, the equity will be 20%, while the remaining 80% will be debt financing.

## Revenue Plan

There are three main sources of revenue for Sajha Yatatyat. These include:

* Revenue from ticket sales
* Revenue from advertisement in the buses
* Rent of Sajha Yatyat' property

## Loan Payment Schedule and Return on Equity

The total amount of loan required for scaling up of Sajha Yatayat's services is Rs. 90,000,000. The loan will be paid over a period of 10 years with equal monthly installments.