Bridging the Gap

Your role in transporting children with disabilities to school in developing countries



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Front cover: The title of the publication, "Bridging the Gap: Your role in transporting children with disabilities to school in developing countries," appears at top. The remainder of the cover is an illustration of children, with and without disabilities, arriving at a school using different modes of transportation including walking, bicycle riding, and vehicular transport (ramp-equipped bus and taxi, a motorized auto-rickshaw, and a motorcycle-pulled passenger cabin). Pedestrian accessibility features include continuous level sidewalks, a zebra-striped raised crossing and a zebra-striped crossing using curb ramps.

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EXECUTIVE SUMMARY

An international team has brought together research, case studies and interviews with heads of schools in the Americas, Africa, and Asia in order to create a stronger case for the provision of transportation to help address the long-standing problem of millions of children with disabilities failing to attend school in developing countries. Transportation to and from school needs to be more fully explored in order to provide an effective supplement to initiatives for more inclusive schools with better trained teachers and on-site accessibility features.

The findings within this guide (see page 9) indicate that children with disabilities who walk or ride a wheelchair or bicycle to school face formidable problems of safety and fatigue. Parents are often unable to afford transport of their children in vehicles while governments are often unwilling to take on all or part of these costs. A need for trained aides or attendants, when required on vehicles, is another key obstacle, along with a lack of travel training for children. The guide recommends a spectrum of solutions, discussing the use of government-paid subsidies to parents to defray transportation costs as well as phasing in school transport and public transportation under a variety of different conditions. The roles of non-governmental organizations and communities of faith are discussed along with local approaches including mobility management techniques and the use of technology to better address some of the issues caused by lack of transportation to school.

Recommendations (see pages 10-13) are suggested for how different communities of interest can assist, including the global development community, government agencies such as education and transport ministries, transportation providers, schools and school districts, and local communities including parents, caregivers, disability NGOs, and children with disabilities as they grow older and become more independent and productive members of society. The guide is divided into three parts, each presenting topical sections and case studies which can help to bridge the gap between education and transportation practitioners and, far more important, to bridge the gap between where students with disabilities live and the schools they need to attend. Some sections of this guide are relevant to different degrees to most children (for example, discussions about walking to school). Many sections are specifically relevant to those children with disabilities who, unlike their peers without disabilities, must ride in a vehicle if they are to attend inclusive schools which welcome all children.

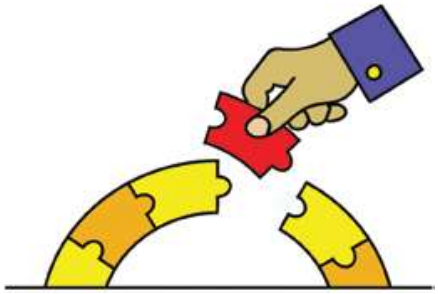
Bridging the Gap:
Your role in transporting children with disabilities to school in developing countries

INTRODUCTION

This guide provides practical information for people who want to improve transportation for children with disabilities in developing countries.

- The guide will help parents and their children, teachers, heads of schools, and education officials to improve transport to and from school for children with disabilities.

- It will help transportation officials and transport providers, as well as agencies promoting sustainable development in developing countries.



This guide is intended to help bridge the gap *between* the world of education and the world of transportation. The United Nations Sustainable Development Goals (SDGs) seek "equal access to all levels of *education and vocational training* for the vulnerable, including persons with disabilities." They *also* seek "to provide safe, affordable, accessible and sustainable *transport systems* for all."

We intend this guide to help implement the SDGs' education and transportation goals.

By improving transportation to and from school, more children with disabilities will attain the knowledge and skills to enable them to be productive and independent adults within an inclusive society.



This guide deals with transportation topics and provides case studies to illustrate many of these topics. We intend (1) to promote a global conversation about how to improve transportation to school for students with disabilities while (2) providing a menu of practical steps and possible solutions from a spectrum of countries at different income levels. Our case studies therefore include countries at different levels of development.

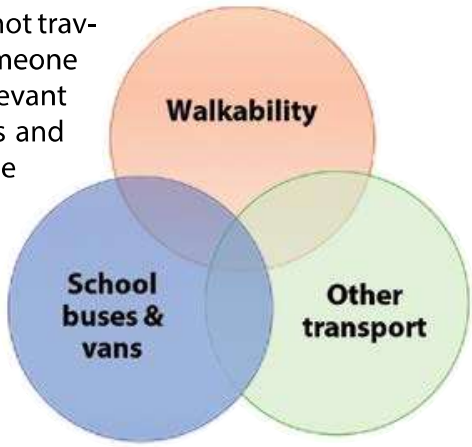
Because this is the first guide of its kind, we hope other agencies will produce research and implement projects that expand upon the different topics that we will introduce. ***The guide addresses a variety of circumstances found in our case studies, ranging from children with disabilities riding on school buses in large cities to children walking to school in some rural areas where roads do not even exist.*** Different sections of this guide will address different situations. For many parents there is no way for their child with special needs to get to school. For others, there is a very difficult choice between keeping their child at home, having their child face the hazards of pedestrian paths (if able to walk), or paying high transportation costs for their child to use unsafe vehicles with untrained drivers on unsafe roads.

We hope this guide will help connect advocates for school transport for students with disabilities with advocates for inclusive transportation for everyone. Several sections of the guide are relevant to helping ***all*** children to get to school, whether or not they have a disability. We all need to work together to create sustainable cities and healthy rural areas.



So that we have a common understanding of the terms we will be using, here are some definitions based on the main types of school transport that are now in use:

When we use the term ***transportation to and from school*** we refer to three types of mobility.



- ***Walkability***, because children in developing countries who do not travel in a vehicle must walk to and from school or be carried by someone who is also walking. This discussion of safe travel paths is relevant to "rollability" by wheelchair users as well as users of bicycles and tricycles. We will discuss walkability in ***urban*** areas (such as the condition of sidewalks and street crossings), as well as conditions in ***rural*** areas (especially if roads are not maintained or children walk on unsafe footpaths).

- ***School buses and vans***, because in many locales they are widely used. We will discuss safety, the use and training of drivers and assistants on the bus, and the hard-won experience of schools around the world when it comes to vehicle maintenance and related topics.

- ***Other types of transport***, especially regular public transportation such as buses and taxis, and also the use of smaller vehicles such as motorized auto-rickshaws and other "three-wheelers." We will also

discuss coordinating with parents and the community to provide more and safer transportation and the promotion of "mobility management" principles.

When we use the term ***children with disabilities*** in this guide, we refer mainly to children with functional impairments which can make it difficult or impossible to safely walk or ride a vehicle in order to get to school. People may be disabled by physical, intellectual, or sensory impairments, or various medical conditions. Disabilities may be permanent or temporary. How a community *regards* a person with a disability will often contribute to the functional impairment. In many regions, a *lack of accurate diagnosis* of a disability presents an obstacle. For more information, see the definition of disability of the World Health Organization's "International Classification of Functioning, Disability, and Health (2001)."

Although a great many children with disabilities have ***multiple impairments***, for ease of explanation this guide groups disabilities into three basic categories.

- Children with ***intellectual disabilities, emotional/behavioral disorders, and learning disabilities*** *may* have significant limitations in both intellectual functioning and in adaptive behavior, which includes many everyday skills.

- Children with ***sensory*** impairments include those who are blind or have low vision, or are deaf or deafened or hard of hearing.

- Children with ***mobility*** impairments include those who need a wheelchair or crutches or a cane for greater mobility, as well as others who have trouble walking or taking part in school activities due to their physical condition.

When we use the term "parents" or "caretakers" of children with disabilities, we generally refer to the relative responsible for a child (usually the mother) or an agency or extended family which is, hopefully, responsible for the care of a child.

If you are a policy maker or a member of the global development community, we suggest that you begin with Sections 1 and 2 in Part 1 of this guide before proceeding to other sections.

If you are a teacher or principal, or a parent or caregiver, you will find the entire guide of interest. You may wish to focus on Part 2, which includes Sections 3 through 9.

If you are a transport official or operate a transportation service, Part 3, which includes Sections 10 through 13, may be of special interest.

Parts 1, 2, and 3 each include sections on topics, as well as case studies from different countries which illustrate topics discussed throughout the guide. Most case studies illustrate multiple topics. The different sections and case studies are listed in the Table of Contents on the following pages. Appendices on various topics are added at the rear of the Guide.

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KEY FINDINGS ON MOBILITY AND TRANSPORT TO SCHOOL

- ***Enhanced transportation can assist millions of children with disabilities to attend school in developing countries:*** The need to make it easier for children to walk or ride to school is supported by surveys, interviews with heads of schools, case studies, and other research found in this guide. There has been surprisingly little discussion or research about this concern in the past. School transport (or lack thereof) exists in a relatively unoccupied space on the edge of the worlds of transportation, education, global development, and disability rights.

- ***Better school transport requires cooperation among constituencies:*** The development community, governments at all levels, transport providers, NGOs, school districts, principals, parents, disability advocates, community groups, research agencies, communities of faith, and others all need a place at the table. With greater collaboration, different ways to address transport to inclusive local schools becomes increasingly possible.

- ***Cost and distance must be addressed:*** The cost of transportation, which increases with distance, is significant as a portion of education expenses for most students with disabilities. Parents unable to pay transportation costs often have no choice but to keep their children out of school. Governments may be unwilling or unable to subsidize these costs, so cost issues must be researched and long-term plans must be carried out to address these issues.

- ***"Walkability" is an obstacle for many children:*** The condition of roads and footpaths in both rural and urban areas often prevent children, and especially children with disabilities, from travelling to and from school.

- ***Vehicle size matters:*** Vehicles of different sizes are appropriate for different transport- to-school tasks. Smaller "three wheelers" are more affordable than larger vehicles in some circumstances, while taxis, vans and other paratransit modes are more useful in others. Transport to school via motorcycle raises safety concerns in many countries. School buses in lower-income countries are generally without accessibility features. Their drivers rely on "on-the-job" experience for training rather than structured training programs.

- ***Trained aides/attendants are needed on vehicles in some but not all cases:*** In many countries the mothers of children with disabilities are usually heads of households and may serve as sole providers for their families. They cannot be expected to also accompany a child with disabilities daily on transport to and from local schools.

- ***Communities of faith and NGOs often supplement government schools:*** In many countries, faith groups and non-governmental organizations have founded and supported schools which serve children with disabilities, as well as procuring donations to purchase vehicles to assist them to attend. Their funding often originates with individual donors. This donor base accounts for a significant portion of the existing vehicles used to transport children with special needs in some countries.

- ***Technology can play a helpful role:*** The increase in the use of cell phones and smartphones in developing regions may assist parents and caretakers to better coordinate transportation or to "virtually" accompany their children in some circumstances. As internet services improve, instruction at school can be reinforced at home. Transportation is required if resource teachers are to visit isolated communities.

KEY RECOMMENDATIONS

Practical actions suggested for different communities of interest are summarized below. In each case the three columns are for (1) recommendations, (2) comments, and (3) where to go in this guide for more discussion concerning specific recommendations. Additional and more detailed recommendations are noted in several sections and case studies.

The global development community (U.N. agencies, development banks, others)		
(1) **Recommendations**	**(2)** **Comments**	**(3)** **Discussion**
Discuss and establish policies and expectations to ***prioritize safe and accessible pedestrian paths*** for those children with disabilities who can use them, while fostering engagement by international NGOs.	• Extremely high impact, with potential benefits for millions of children with disabilities as well as all other students. • Policy formation is low cost. Implementation is high cost and requires prioritizing and phasing in improvements. Multi-year planning must involve all levels of government, schools and school districts, and other agencies. • Align policies with the UN Convention on the Rights of Persons with Disabilities (UNCRPD) Articles 4 and 9 and the UN Sustainable Development Goal (SDG) 11.7 to provide universal access to persons with disabilities and other vulnerable groups. Safe paths should align with SDG 11.2 on road safety.	• Go to Sections 1, 2, 3, & 4 of this guide • Go to case studies including Nigeria, Tanzania, Kenya, Bolivia, & Mexico
Discuss and establish policies and expectations to ***provide safe, accessible, reliable, and affordable vehicular transportation*** for those children with disabilities who must travel in vehicles to attend school.	• Extremely high impact, with potential benefits for millions of children with disabilities. • Policy formation is low cost; implementation requires major initial and ongoing costs. Improvements must be prioritized and phased in with multi-year planning needed by education, transport, and finance ministries, as well as regional and local entities including schools and school districts. Extensive participation by the private sector, NGOs, and faith communities may also be required. • Align policies with the UNCRPD as well as UN SDG 11.2 on transport systems for all, with special attention to persons with disabilities and other vulnerable groups.	• Go to Sections 1, 2, and 5 through 9 • Nearly all case studies address public, private, and school transport at some level • See recommendations at Section 5.4
Coordinate with other parties to ***promote research, pilot projects, forums, training***, and the preparation of specialized materials.	• High impact, aligning with SDG goals mentioned above. • Coordination is medium cost. Grants for further research and other projects will be higher cost. • Coordination should include outreach to NGOs and communities of faith with prior experience in this field. • All results should be sent to policy makers, media, others. ***Sample projects:*** • Promote research into cost and safety of school transport for children with disabilities. • Fund pilot projects on needed topics, including: (1) Use of a central call number for parents seeking school transport (2) A planning process to develop a mobility management program for children with special needs	• Go to Sections 1, 2, 7, & 8

	(3) Assisting families to acquire vehicles and form transport co-operatives (4) Designing more accessible "three wheeled" vehicles (5) Pilot projects to test "walking school bus" principles and enhanced travel training. (Also see "Bus in the Classroom")	• Section 4.2 • Section 6.4 • Section 9
Government agencies, with a focus on education ministries and transport ministries		
Promote safe walking to school for children with disabilities	• See comments above on high cost, high impact, and SDG alignment regarding walkability. • Walking includes being carried by another person, rolling in a wheelchair, or using a bicycle or tricycle. • Coordination between education, transport, finance, public infrastructure, and public safety officials is critically important. • Carry out access audits of existing pathways to school. • Plan and build accessible footpaths, sidewalks, speed bumps, signage, safety warnings, and road crossings, prioritized to form a continuous "accessible trip chain" between home and school. Establish demonstration projects to illustrate safe design of pedestrian pathways. • Carry out public education campaigns to reinforce driver safety in the presence of children walking to school.	• Sections 1, 2, 3, & 4 of this guide • Case studies including Nigeria, Tanzania, Kenya, Bolivia, & Mexico • See Sections 3.5 and 4.3 and 4.4 for more specific recommendations
Promote safe and accessible vehicular transport to school for children with disabilities	• See comments above on high cost, high impact, and SDG alignment regarding vehicular transport. • Vehicular transport refers to all modes and sizes of vehicles, including local and community models based on mobility management principles. • Governments should explore: (1) Different methods of assuring vehicles are available for school transport, including contracting out, purchase or lease of transport services, subsidies to school districts, school-operated services, etc. Mobility management principles and community-based services should be investigated. Driver training standards should be considered. (2) Use of direct subsidies to parents (or to schools to provide to parents) to pay for needed transportation, including proper notification of their availability. • Appropriate ministries should phase school transport into their budgets and assign staff to plan, implement, and evaluate services on an ongoing basis. • Governments should consider eliminating taxes or duties on accessibility features on vehicles.	• Guide sections 1, 2, 5-8, 10, and 11 • Nearly all case studies address public, private, or school transport at some level. • Subsidies are explored in case studies from India, Japan, and Costa Rica. Also see 8.3 regarding Sri Lanka. • Government roles in transport provision are discussed in case studies from Pakistan, Brazil, Mexico, USA, Japan, & the Dominican Republic.
Promote integrated planning of public and school transport to increase availability of different transport modes	• Children with disabilities, and any aides who accompany them, will benefit from transit stations and terminals which interface with school sites and/or with school transportation. (For example, bus rapid transit stations which interface with school transport along with other intermodal connectivity; rural transport that is made increasingly available to children with disabilities for school transport.)	• Section 5, 6, and 7

Seek advice from educators currently working with children with disabilities	• Ministries of Education should seek the advice of NGOs and faith communities which have historically operated schools that include children with disabilities when they design transportation solutions for such children.	• Sections 5.3 and 8.10
Transportation providers (whether public or private, school-operated or contracted)		
Train drivers and attendants to competence in meeting the needs of children with disabilities	• This recommendation covers a wide range of situations, including agencies operating school buses, public "fixed route" bus and rail systems, and less formal operators of paratransit and other smaller vehicles such as three-wheeled auto-rickshaws. • Training should include initial training, periodic retraining, and cross-training (e.g. between drivers and attendants/aides).	• Section 9 • Appendix 4 • Case study on "Bus in the Classroom" • Sections 12 and 13
Provide low-cost access features	• At little cost, providers can provide high-contrast colors on vehicles steps and railings, large-print destination signs, non-skid flooring, and other features to assist all passengers, including all persons with disabilities.	• Sections 10 & 11
Implement safety policies for riding to school	• Drivers need to understand the special needs of children with disabilities, including related policies, procedures, and safe driving practices.	• Section 12 • Appendix 2
DPOs, NGOs, communities of faith, and individual donors		
Share experience and form coalitions to improve walking and riding to school	• Disability agencies and organizations need to become informed about the spectrum of possible solutions to the mobility and transportation challenges facing children with disabilities. They need to consider coalitions to advocate for planning, funding, implementation, maintenance, and scaling up of transport improvements. • The wide variety of inclusive and special schools – operated by governments, NGOs, communities of faith, and the private sector – will benefit from meetings and forums to share their transportation experience and build coalitions to seek improved transportation.	• Sections 2.8, 5.3, 5.4, and Section 7 • Case studies from Kenya & Bolivia • Case study on outreach to donors • See box at Section 8.10 for advice on outreach to donors.
School districts, individual schools, principals, teachers, and other staff		
Select sites for new schools that are located near to the homes of students	• Cost varies from low to medium, with high impact • Inclusive schools that intend to welcome children with disabilities should be built on sites carefully selected to maximize ease of walking/being carried, and that favor low-cost transport with short trips. Warning: Before selecting "low cost" sites far from town/village centers, first quantify the large ongoing transportation costs resulting from this decision. Avoid high annual transportation costs which continue through the life of the school building. Still more important, avoid creating schools that cannot be reached by children with disabilities.	• Section 2.5
Improve footpaths on approaches to schools	• Establish standards for maintenance of footpaths on approaches to schools (e.g. within 500 meters).	• Sections 3 and 4
Include transportation components in	• Whether each student has the equivalent of a formal Individual Education Program (IEP) or merely a single page of goals for the	• See recommendations at end of

annual plans/goals for each school & each student with a disability	year, make sure the plan includes the required types of transportation (walking, bus, etc.) and any challenges of cost or distance. If lack of transport keeps a student from attending, at least note this down to "make the case" for improved transport.	case study from Mexico. • See "Bus in the Classroom" case study.
Consider fleet management principles	• Investigate the cost and service tradeoffs between operating or contracting out for school transport services, and between purchasing or leasing vehicle fleets. Research may identify previously unknown economies of scale by grouping schools together.	• Curitiba, Brazil, case study • Sections 10 & 11
Consider sharing resources between schools & school districts	• Pooling buses and drivers between schools could lower costs if schools have staggered hours. Less expensive contracting with the private sector could also be possible if school travel does not occur during peak travel hours.	• Section 7
Share training costs for drivers and for students with disabilities	• Low cost with high impact • School districts can offer disability awareness training for drivers and travel training for students to all schools in a city or region, achieving economies of scale while lowering the cost of such training.	• Sections 9 & 13 • "Bus in the Classroom" case study • Appendix 4
Carry out travel training for children	• Such training improves safety, and in some cases may eliminate the need for attendants/aides on vehicles. • Assists older students to transition to independent living.	• Section 9 • "Bus in the Classroom" case study • Appendix 3
Assist parents to coordinate school transport for their children	• Promote safe walking to school programs. • Task a staff person or teacher to maintain lists of phone numbers of parents willing to share resources or vehicles to help each other's children get to school.	• Sections 4 & 7
Communities & neighborhoods, community-based rehabilitation agencies, local groups		
Identify and share local resources	• Resources may be available both to enhance school transport services, and/or to create opportunities to locate students closer to local schools.	• Section 7 • Kenya case study
Parents and caregivers		
Coordinate with other parents to share resources	• Urge schools to maintain lists of mobile phone numbers to help parents to coordinate escorts for children walking to school as well as ridesharing. Coordination could extend to providing aides on vehicles carrying several children with disabilities to school.	• Section 7
Advocate for needed transport	• Parents should advocate for their own children needing transportation, and work with others including disability NGOs.	• Section 7 • Appendix 5
Children with disabilities		
Include children with disabilities in discussions about their transportation	• Familiarize children with disabilities with travel modes to prepare them for transition to more independent living as adults. • Discuss transport needs and concerns with children and support their use of school transport where it exists. • Consult with children as they grow older concerning ways to advocate for and improve their transportation experience.	• Section 9 • Case study on "Bus in the Classroom"

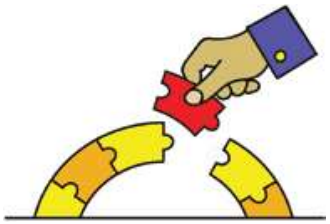
PART 1.

DESCRIBING THE NEED

Sections 1 & 2

- Transportation as a missing link and how this keeps children from attending school

SECTION 1. TRANSPORT TO SCHOOL: A MISSING LINK FOR CHILDREN WITH DISABILITIES



Purpose of this section: *To present data on how transportation to and from school is a "missing link" which, if addressed, can expand education for children with special needs in developing countries.*

The scope of our concern

The purpose of this guide is to promote transportation to and from school for children with disabilities in developing countries. It is estimated that at least 80 million children with disabilities live in developing regions. "Among marginalized groups, children with disabilities remain the most excluded."[1] Though consistent data is lacking, it is clear that tens of millions of children with disabilities in developing countries do not go to school.

1.1 Transport is a missing link

It is universally acknowledged that most children with disabilities in developing countries are not able to attend school for a variety of reasons. Lack of adequate transportation is usually cited as one of the major reasons. Other concerns include the inaccessibility of school buildings and grounds, overly large classes, inadequate training of teachers and teacher aides, lack of assistive technology and other resources, and community attitudes which are hostile to children with disabilities.

Yet our review of the literature suggests that improvements in these other areas have not been matched by targeted research to improve transportation, by the development of transportation policy frameworks, nor by significant increases in funding for school transportation. While everyone agrees that transportation is "a problem," far less has been done to actually define this problem and its ramifications than has been done on these other topics.

- *Improvements in teacher training, school accessibility, and community attitudes will not help children who cannot reach their schools due to lack of transportation.* In economically depressed areas this implies that most of those children with special needs who live far from school will never receive an education. Funds spent on training and improvements at schools will not yield their full potential.

- *Without daily transportation to more inclusive schools, many parents and educators who want to educate their children with disabilities may be left with no choice but to board such children at schools which are less inclusive and less suited for such students***.** Improved transportation is needed to address this

1 Citing the Global Partnership for Education, globalpartnership.org, downloaded August 3, 2016. International data on disability varies widely from one country to another due to differences in defining disability or implementing the surveys. Even in countries where most non-disabled children go to school, many children with disabilities do not go to school. For example in Bolivia about 98% of non-disabled children are stated to go to school, but under 40% of disabled children attend school. In Indonesia, over 80% of non-disabled children go to school, but less than 25% of children with disabilities go to school. (Data from World Report on Disability [2011] prepared by WHO and the World Bank.)

concern so that students with disabilities may benefit from more inclusive schools where they are welcomed along with all other students.

To help quantify the impact of transportation, we developed data from the following sources.

- Our transportation survey of 40+ Sub-Saharan African schools in collaboration with Missouri State University in the USA (see box below),
- Personal in-country interviews with seven heads of schools or their designates in four countries, performed by members of the team preparing this guide (see Contributors list on page 133), and
- Further evidence from the fourteen case studies in this guide, other types of surveys, and a review of the literature.



Interns supervised by Amin Amir Andani in Pakistan discuss transport-to-school issues with the head of a school for children with disabilities in Karachi. These in-country interviews provided another source of information in addition to surveys and case studies also used in this guide. - Photo courtesy of NOWPDP

1.2 Evidence that transport is a missing link: Survey results from forty+ schools in Sub-Saharan Africa

Access Exchange International (AEI) collaborated with Dr. Paul Ajuwon of Missouri State University (MSU) in the USA to carry out an international survey sent to heads of schools, seeking responses to questions on transportation for their students with disabilities. An introduction to the survey is found in the box at right and further information is available in Appendix 1.

Survey results focus on children who live at school or who commute daily to school in Sub-Saharan Africa[2]

Extensive transportation information was received from 43 day schools and boarding schools in Sub-Saharan Africa serving more than seven thousand students with special needs. The schools in Sub-Saharan Africa reported that 56% of their students were boys

The MSU-AEI survey

This survey – a collaborative project between Professor Paul M. Ajuwon at Missouri State University (USA) and Access Exchange International in San Francisco (USA) – will be called the MSU-AEI survey in future citations in several sections of this guide. Survey questions are highlighted in yellow.

Purpose: The purpose of this English-language survey was to gather data concerning transportation issues facing children with disabilities needing transport to school in less-wealthy countries. The survey was disseminated via Survey-Monkey to principals/heads of schools. Completed surveys were submitted between October 2015 and January 2016.

Responses: A lengthy survey instrument was required in order to even begin to explore transportation issues. Some survey respondents omitted answers to some or many questions, and the numbers cited will vary accordingly. (to next page)

2 Throughout this guide, a school "trip" is a one-way trip by any transport mode including walking or using any conveyance ranging from a wheelchair to a bus. A round trip is two trips.

and 44% girls. This large sample merits special consideration and we will refer to these findings from Sub-Saharan Africa as we discuss topics in different sections of this guide.

Quantifying the potential of transportation to increase attendance at existing schools

Two questions were answered by nearly all of the responding schools in Sub-Saharan Africa which provided transportation information.

- Does a lack of transportation prevent you from *accepting* more students with disabilities?

  68% responded "Yes"
  32% responded "No"

- If your school had adequate transportation available for students with disabilities, by what *percentage* would you expect that attendance would increase?

  The responses indicate that attendance at the responding schools would increase by an average of 24% if needed transportation were available.[3]

(from previous page)

Forty-three of the Sub-Saharan schools answered most or all of the questions that applied to their situation.* These schools included 29 government schools and 14 private schools. Sixty percent (60%) exclusively serve students with disabilities while 40% are more inclusive. Nigeria is over-represented, with 19 schools (44% of responses and 19% of the region's population), ten responses are from Kenya (23% of total responses), and 7 schools are in South Africa (16% of responses), while the remainder are from Tanzania, Uganda, Malawi, and Togo. The split between types of schools varies. In Nigeria, for example, four of twelve reporting government schools were inclusive and half of ten private schools were inclusive.

Age of students: The youngest student with a disability in each school averaged 6.4 years old and the oldest 22.7 years old. This large difference may be largely explained by the fact that many schools offer some type of vocational training as students get older.

Other sections citing this survey: Go to Sections 2.2 (cost and affordability), 2.5 (trip demand), 3.3 (rural walkability), 3.4 (bicycling), 5.2 (school-operated vehicles), 6.2 (public transportation), and 7.4 (school-parent coordination and teachers as transport providers).

* Responding schools from Hong Kong are cited in a box at Section 5.3. See Appendix 1 for other information.

These data are from a large enough sample in Sub-Saharan Africa that they are very suggestive in combination with other sources of information gathered for this guide. The results of this initial survey will hopefully inspire additional survey work at regional, country and local levels.

- The survey also asked questions about the different modes of transportation used by (1) students who board, as compared to (2) students who commute daily to school. This question elicited a lower response rate, keeping in mind that schools where all students arrived "on their own" might have

3 Forty-three schools responded to this question. Thirty-one of the schools (72%) provided estimates of the percentage increase of students with disabilities if transportation were adequate. Applying this percentage to the reported number of students with disabilities in each of these schools, the result amounted to 1,672 additional students, equal to a 24% increase in the current attendance of all 43 responding schools. The 24% increase is conservative, as it assumes no increased attendance at the 12 schools that did *not* respond to this question. Of course estimates of this type are based on the differing knowledge of the various respondents, but this estimate of nearly a one quarter increase in school attendance is even more conservative when one adds those children with disabilities who live beyond a normal commuting distance for the catchment areas of the schools. Indeed, the 32% of schools who responded that transportation was not preventing them from accepting more students (question 1, above) included schools which were clearly considering other capacity constraints such as building size and the number of available teachers.

had less interest in the question. Only 16 responding schools reported data sufficient to suggest these approximate proportions by travel mode:

(1) ***Transport to boarding schools*** where students remain for an entire week or semester:
Results suggest that *either* the school provides most or all of the transportation by their own vehicles *or* parents must provide transport by vehicle by whatever means they can find. Transportation is stated to remain an issue for these schools even though the overall need for transportation is less than for schools where students commute daily. Our case study from Lesotho illustrates this need.

(2) ***Transport to day schools*** where students commute to and from school five days/week:
Results suggest a more varied picture. Approximately three out of five trips are by students who either walk or are carried to school, or who use transportation arranged or provided by the parents. As many as one out of five trips are provided directly by the responding school and another one out of five trips are provided by "other modes" which are not described.

Note: Sub-Saharan Africa is frequently mentioned when citing results from the MSU-AEI survey. Other inputs into this guide are representative of ***many regions including the Americas, Asia, and Africa***. The international team that prepared this guide intends for it to be relevant to all regions, including low-income areas in wealthier countries. Different parts of this guide are relevant to different situations.

1.3 Evidence that transport is a missing link: Personal interviews at seven special education schools in the Dominican Republic, Pakistan, Nigeria, and Mexico

We tested the findings reported in 1.2 above by means of seven structured interviews with heads of day schools or their designates to provide data to check against the MSU-AEI survey. These seven schools serve more than 800 students with disabilities, of whom approximately 60% are boys and 40% are girls.

The interviews were conducted by Dr. Gretel Silvestre at three schools in the Dominican Republic (one government-operated, one private, and one semi-private);[4] by interns working under the supervision of Amin Amir Andani at two schools – one government and one private – in Pakistan;[5] by Janett Jiménez Santos at one government school in Mexico,[6] and by Tom Rickert with the director of one private school in Nigeria.[7]

4 Interviews with a Special Education School in Puerto Plata (received Sept. 23, 2015), "CAD-07" in Salcedo (received Dec. 15, 2015), and at Garabatos School in Santiago (received Oct. 3, 2015).
5 Interviews with the Society for Rehabilitation of Special Children school (received Aug. 24, 2015), and the Government Special Education Complex (received Aug. 28, 2015), both in Karachi.
6 Interviews with the Centro de Atención Multiple # 7 (CAM-7) in Valle de Bravo (received March 25, 2015).
7 A questionnaire completed by the Director of Open Doors for Special Learners in Jos, Nigeria (received July 13, 2015), followed up by a one-hour telephone interview on August 10, 2015. See also the case study from this school in this guide.

Three schools which quantified an expected increase in daily attendance indicated that average attendance would increase by 25% with adequate transportation. The data sample is small, but not inconsistent with that reported in the larger MSU-AEI survey.

For example, Engr. Jhamandas Rathi, Director of a Government Special Education Complex in Karachi with 300 students, stated that transportation is a major concern and "vehicle maintenance and fueling are a big problem." Eighty percent (80%) of the students use the five 12-year-old buses provided to the school by the government of Sindh Province, but the buses have no access features. Engr. Rathi states more schools are needed so that the students are not required to travel far, and more school buses are needed for those who live near as well. "We can accommodate 100 more students if we have (an) appropriate number of teachers and buses."

1.4 Evidence that transport is a missing link: Case studies and other contacts with educators in low-income regions

Data from the case studies in this guide further support the importance of transportation as a factor that limits the ability of children with special needs to attend school.

- Valle de Bravo, Mexico: The main respondent observed that "If we had the transportation that we need, average daily attendance would be 50% higher."

- Jos, Nigeria: The director of the special education school featured in the case study from Nigeria observed that it is difficult for parents to sustain the daily cost of transportation at a day school. This is one reason why "There is often parental pressure on these private schools (serving students with disabilities) to become boarding schools."

- Santa Cruz, Bolivia: The almost complete lack of transportation for school children with disabilities at this day school for children from lower-income families is viewed as a major reason for lack of their attendance. One observer noted that "There is no accessible transportation anywhere in Santa Cruz." An official with knowledge of 25 social service agencies observed that "none have transportation, much less any accessible transportation."

- West Pokot County, western Kenya: The school director found that an attempt to integrate children with disabilities at their center, into a local public school, proved impossible due to "a combination of attitudes in the region, poorly maintained roads, a lack of vehicles, obstacles to transportation by walking, and a public school system which was not yet resourced to assist children with disabilities." The case study had a happy ending when the director started an inclusive school at the center to teach the resident children with disabilities, while inviting children without disabilities in surrounding villages to also become students and thus support the school with their fees.

- Karatu District, Tanzania: Efforts to date have identified 225 children with disabilities who are able to attend, but with few exceptions *only by walking* to selected schools among the 101 primary and 27 secondary schools in a district with 50,000 children of primary school age. Vehicular transportation is generally not available for these children.

A survey of the literature supports these findings. A typical situation is that of South Africa, where "Human Rights Watch… found that children with disabilities who attend special schools often must pay

fees that children without disabilities do not. In some cases, parents are unable to send their child to school because they cannot pay these fees and transportation costs to school far from their homes."[8] These findings from Africa were echoed by survey responses from a few individual schools in India, Micronesia, Thailand, and Jordan.

A bulletin[9] from the Fundación Saraki in Paraguay notes, "Persons with disabilities, especially those with physical and visual disabilities, are severely affected in their right to access to health services, education, and work by the fact that they cannot count on adequate transportation. For many of them, their days are passed in seclusion in their homes. We often hear of persons who cannot get to rehabilitation services, or children who cannot get to school."

Taken together, the data from the MSU-AEI electronic survey, the personal interviews with principals in four countries, the case studies, and the literature in the field all tend to support each other.[10] These results provide confirmation that transportation is a key issue, with evidence pointing to a significant increase in school attendance if transport becomes adequate.

Section 2 explores how affordability, distance, safety, and other factors result in transportation being a critical component in any effort to make it easier for children with disabilities to attend school.

8 "South Africa: Education Barriers for Children with Disabilities," August 18, 2015, report by Human Rights Watch released at a joint event with South Africa's Human Rights Commission, page 6.

9 Boletín Fundación Saraki, Edición 59, September 2014 (Translated from Spanish by the editor).

10 Taking into account the different names respondents gave to different types of disabilities, the results appear to indicate that students with intellectual disabilities form the largest single category at the schools for which we have data, and also that most of the students are boys.

Case study: NIGERIA

Open Doors Special Education Centre in Jos



Introduction

With a population of more than 180 million, Nigeria is the seventh-largest country in the world. Reliable estimates on the number of children with disabilities are not available. A study in southern Nigeria of more than 1,000 persons with disabilities found that about one half had not acquired any formal education, while slightly over a quarter had a primary school education.* Four out of five respondents reported that they were unemployed.



Travellerspoint - Creative Commons

Open Doors Special Education Centre (photo above) is a private day school for children with disabilities in Jos, Nigeria (see inset), a city of some two million. The school's director is Dr. Joanne Umolu. Dr. Umolu sent her response to an AEI survey in July 2015, and at her invitation we followed up with an extensive telephone interview the following month. The school serves 90 students with developmental and intellectual disabilities, ranging in age from 2 to 29 years old. Fifty-five students are boys and 35 are girls. Twenty-four of the students have cerebral palsy and many of the others are in the autism spectrum disorder or have Down Syndrome. All the students commute daily to and from school.

The following comments by Dr. Umolu have been edited by Tom Rickert and reviewed by her for use in this case study. The editor has highlighted some comments in this initial case study as they bring up concerns discussed later in this guide.

The different modes of travel used by students with disabilities at Open Doors

Most students live within a radius of 8-10 km from the school while some live farther away. Because of traffic congestion, students may spend from one to two hours in a vehicle. In Nigeria, the government provides no assistance to pay for transport costs for children with disabilities.

School bus: Around twenty students use the school's bus. This new 12-seat bus replaces an old vehicle which had maintenance costs that were exceeding all the income dedicated to running the vehicle. The new bus arrives at the school totally full. Parents pay a fee to offset the costs of operating this bus. As with the great majority of such vehicles in Africa, this bus has no access features. Big kids help carry small kids as needed. Children do not sit in wheelchairs while in the vehicle. Typically a child using a wheelchair would keep that wheelchair (if it exists) at home and would ride in the vehicle by being placed in a seat (in the vehicle). The school would then have a wheelchair for this child while at the school. Older students carry those who cannot sit by themselves. Drivers are

long-term employees, familiar with the students and their special needs, even though they do not have formal training. An attendant is also on the bus. This person is a former student with a minor disability. He is called a "conductor," picking up on the title of attendants on regular buses. He helps children to get on and off the bus, etc.

Private cars: Three private cars serve as taxis bringing groups of students from nearby towns and from another part of Jos. Some teachers with private cars bring students who live near them, although most of the teachers commute to the school on public transport. The school sometimes links families up so that they can share transport.

Commercial "three wheelers" (motorized auto-rickshaws): The three-wheelers carry some students individually or in groups as arranged privately by their parents. Local three-wheelers charge based on distance and time of trip, typically a negotiated fare with the parents of children making the arrangements with the drivers. Exceptions are those children sponsored by outside sponsors, in which case the school pays the drivers directly. Generally, the three-wheelers carry a maximum of 3 children, while four-wheeled taxis can carry 7-8 children. Three-wheelers are used more for local trips, while the economies of scale make the four-wheelers more cost-effective for trips from outlying areas. The 3-wheelers in Jos replaced motor-bikes which were banned by the government. Most of the drivers of the three-wheelers obtained government loans to procure these upgraded vehicles. Training might be helpful for the drivers of the three-wheelers, but it is not a pressing issue as most of the drivers are relatives or neighbors of parents with children with disabilities or other interested parties. This enhances trust as they have prior knowledge of the trustworthiness of the drivers.

Taxis: Some taxis may be able to carry a folded wheelchair. For example, the uncle of one of the children takes his own child to school while taking other children to school to subsidize the cost of transporting his child. He takes along the wheelchair used by his child.

Motorbike: One 10-year old child from a neighboring village comes to Jos on a commercial motorbike while tied to his mother's back and is then picked up in Jos by the school's bus.

Walking: Only one student walks to school, while the others all use vehicles. Walking is usually out of the question. There are no sidewalks and traffic in this congested city is too dangerous. Open Doors school does try to teach learners with disabilities how to cross the road.

Bicycling: None of the students can ride a bicycle. Heavy traffic would make bicycling to school much too dangerous and there are no separate pedestrian or bike paths.

Public transportation: No children take public transport independently.

Specific transportation problems facing children enrolled at Open Doors

- Unlike students in regular schools who tend to live in a location convenient to their schools, our children live in many different parts of Jos and some of them live in Vom and Bukuru and other towns and villages which are located outside of Jos. Thus travel distance is greater. *(Editor - More local schools with resources to welcome children with disabilities could ease this problem.)*

- Many of our students come from poor families who find it is difficult or impossible to afford the transport fare. Children with no disabilities usually attend schools near them and children from poor families usually walk to school.

- Some of our children cannot sit independently so someone has to hold them. Some parents have to pay for someone to ride with the children to and from school so that the child can be transported. *(Editor - The use and training of aides is discussed in Sections 5.5 and 13.6 in this guide.)*

- The students in Open Doors with intellectual disabilities are not capable of being indepen-

dent enough to take public transport to come to school on their own.

Trends in education for children in Nigeria

Dr. Umolu is familiar with special education schools in Jos, Lagos, Abuja, and other cities in Nigeria, and also notes that the situation in Ghana is reported as similar to that in Nigeria. Due to her broad experience over many years, some of her comments are added to give the reader a better understanding of the situation at a country level. - Editor

Boarding schools for children with disabilities predominate

In Nigeria, historically, special education schools have been operated by (1) the government and (2) religious bodies (church-run). Most of these government-run or church-run schools are boarding schools. The boarding schools are mainly for blind children, or deaf children, or for "handicapped children." The government-run schools accept children with a broad spectrum of disabilities. Boarding schools mainly concern themselves with student transportation at the beginning and end of a term. However, they would need a staff vehicle on hand for other needs including field trips and use in emergencies.

Parents tend to opt for boarding schools

Major reasons for this include (1) it is difficult to sustain the daily cost of transportation at a day school, (2) parents may be seeking respite from the stress of having a child with a disability at home, and (3) there may be no special day school in the town in which they live.

In this connection, it is noted that the great majority of children with disabilities live in households headed up by their mothers and the fathers are usually absent – sometimes working in other cities and sometimes having abandoned responsibility for these children. This clearly adds to the stress of caring for a child with special needs and adds to the allure of sending the child to boarding school.

When a child must transfer to another school…



On a personal note, Dr. Umolu shared with us the story of one student, Blessing, a 17-year-old Nigerian girl who had lost a leg to leprosy that was cured earlier in her life (on right in photo).

Dr. Umolu writes: "While Blessing was at Open Doors she made rapid progress academically and learned to read and write well enough to enter secondary school. However, it was felt best that she move in with a caring relative (in a distant village) as she was faced with stigmatization and cruelty in her living situation.

We looked forward to hearing that Blessing was settling in well in the village and going to the local secondary school as arranged. To our great disappointment, a month later we learned that she is unable to go to school because it is not possible to wheel her to the school due to the condition of the road. We are only hoping that some form of transport will be worked out in the village and that Blessing will soon be back to school.

Day schools

There is a tendency for the creation of more private schools for children with disabilities. These are typically day schools, and operate more out of a profit motive. These emerging private schools often are for children with autism. Some 20 years ago, autism "was not an issue" in the minds of most parents. These schools are coming into existence in some of the wealthier cities in Nigeria,

such as Lagos and Abuja. There is often parental pressure on these private schools to become boarding schools.

In Jos, there are two regular schools which are considered inclusive because they take children with disabilities. In general, if these children have a mobility limitation, this may work well without a big need for support. However, if the children are blind or deaf, or have an intellectual disability, it is difficult to mainstream them due especially to the lack of resources to assist the already overburdened teaching staff. Lack of resources is also a problem at many schools which are only for children with disabilities. Care must be taken, as "mainstreaming" should not become an ideal that has little to do with reality. When children with disabilities are placed in public schools, those schools should be prepared to take them.

In all schools with disabled children attending, a caregiver from the family or from the school may be needed for children who may need assistance with feeding and other care. When parents or caregivers are needed at school, they must pay their added transportation costs.

Summing up

Cost is always the main issue for transportation in urban areas, although in some rural areas the main issue may be *availability* of transport.

Kids who are in too difficult a situation to go to any school typically end up at home, with nothing to do. Such children may be "sent back to the village," that is, sent to the location from which their parents came, due to parental feelings of shame, of disability being a curse, etc. There, the children often lack care, sicken, and die.

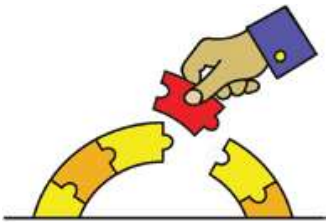
"On-line learning" runs into the fact that there is usually no steady power supply. Even in a city as large as Jos, the school must rely on its own generator for power most of the time. Also, computers are difficult to afford and internet services are extremely expensive.

This introductory case study is composed of comments by Dr. Joanne Umolu, as edited by Tom Rickert and reviewed by Dr. Umolu in March 2016. The comments are based on survey responses returned in July 2015 and a follow-up telephone interview with Dr. Umolu in August 2015.

The case study illustrates the many modes used for school transport for children with disabilities. Note the importance of the location of school sites when it comes to transport for children with disabilities to day schools of any kind (special or more inclusive, public or private). As schools become more inclusive in line with the United Nations Sustainable Development Goals, improved transportation is needed to assist children with disabilities to reach them.

• Introductory material about disability in Nigeria is from Spyghana, March 24, 2015, citing the DFID Voice of the People (V2P) Project Phase II - Photos from Open Doors are courtesy of that agency and with its permission.

SECTION 2. AFFORDABILITY, DISTANCE AND SAFETY: KEY ISSUES FACED BY PARENTS OF CHILDREN WITH DISABILITIES



Purpose of this section: *To describe the related issues of cost, travel distance, and safety in transporting children with disabilities to and from school*

2.1 Introduction

The previous section discussed the importance of transportation as a missing link when it comes to school attendance by children with disabilities in developing regions. In this section we discuss major factors that ***cause*** transportation to be a missing link. These factors are interconnected and each impacts the others. *Affordability, distance, and safety are usually mentioned first in discussions about school transportation. However, road maintenance (or lack of such), geography, climate, and the distribution of pickup and drop-off locations can be equally important.*



These factors need to be analyzed together by education and transport officials at every level. Parents, children, teachers, and school principals are dependent on bus drivers, mechanics, and road maintenance crews to get children to their classrooms. City school and transport departments must understand each other's needs. National transport and education departments and ministries need to address inclusive education and special education challenges together. Lack of communication with others ("silo thinking") must be overcome for children with disabilities to access the education they deserve.

2.2 Cost and affordability: Responses from the MSU-AEI survey

We asked an open-ended question in this survey (see the box at Section 1.2) designed to help compare responses which focused on three key issues: the cost/affordability of transport, travel distance, and safety while travelling. Forty-seven Sub-Saharan African schools responded to this questions, which was worded as follows: "What are the main transportation problems for students with disabilities? Sample answers might by 'parents cannot afford public transportation,' 'students live too far away,' 'walking is not safe,' or any problem you feel is a major obstacle." The question was deliberately worded to learn how heads of schools viewed the relationship between cost, distance, and safety.

In comparing the 47 responses, we noted similar levels of concern about affordability and distance issues (45% and 49% of responses, respectively), presumably referring to the cost of riding on transport vehicles and the closely linked issue of living at such a distance that travel costs must be incurred. More than a quarter of respondents (28%) mentioned *both* distance *and* cost. Fully 40% of the responses cited safety concerns for the many students who walk to school, which is also related to distance. Safety

is also a major consideration given the unsafe road conditions in most of Sub-Saharan Africa, although this particular question was not designed to elicit statements on that topic. *Clearly, cost and distance and safety are mutually related to varying degrees depending on the circumstances of each school, and indeed of each child.*[1]

The affordability of transportation is an overriding issue which must be addressed by any serious attempt to enhance transportation to school by improvements in both "walkability" (Sections 3 and 4 of this guide) and vehicular transport (Sections 5-13). The cost of transport – whether in terms of improvements to pedestrian paths in urban or rural areas, or in terms of providing rides in transport vehicles – is the proverbial elephant in the room. Someone must pay this cost, whether it is a parent or an external agency. Ignoring this issue can amount to a state of denial when it comes to the provision of the required transportation improvements to permit children in less-developed regions to attend school, including inclusive schools at sites near to the homes of children with disabilities.

2.3 Cost and affordability: A study from Pakistan and cost scenarios from three countries

2.3.1 A study of transport-to-school costs in Karachi, Pakistan

A study of transport costs in Pakistan was a unique contribution to this guide, prepared for Access Exchange International by Madiha Siddiqui and Rimsha Mughal under the supervision of Amin Amir Andani, Program Manager of the Network of Organizations Working with People with Disabilities (NOWPDP) in Karachi.[2] The key findings from this study in Karachi are summarized below.

Regarding the role of transport to school

"The transportation system in most countries is not developed to cater to the specific needs of people with disabilities, thereby restricting them to their homes and making them dependent upon their family members for a lifetime… The problem faced by the majority (of children with disabilities) is lack of appropriate conveyance options to (schools and other) institutions." The "primary reason for student absences is non-availability or non-affordability of conveyance options."

"The cost of transportation was a crucial factor for parents when sending their children to school. It formed a significant proportion of the cost of sending their children to schools. They preferred walking their children to school in most cases rather than using a means of transportation due to high costs."

Two low-cost types of travel are by auto-rickshaw and qingqi. Both vehicles are "three-wheelers." The auto-rickshaw is of standard design, while the qingqi is a hybrid of a motorcycle and auto-rickshaw, with a seating capacity of 6-7 riders riding facing both front and backwards. Multiple customers or a group can use it at a time, and one must walk to a stop. "(The qingqi) seat is not at all secure (and is) extremely dangerous. (There are) many reports of the vehicle tipping over in traffic."

1 34% of the responses also addressed other issues, for example related to the vehicles themselves, local terrain, or parent or community attitudes.

2 Study dated November 26, 2015. Amin Amir Andani is also the author of the case study on schools in Sindh Province, Pakistan, which follows this section.

For passengers who choose to ride in commercial vans, "the higher variable costs simply represent a premium paid for a relatively comfortable and private mode of transportation, whereas auto-rickshaws and qingqi are the least comfortable/secure out of all."

The study observes that "rickshaw drivers refuse to place (a) child (with a disability) in the vehicle… We found that parents of handicapped children had to personally assist their children to the schools. When using a means of transportation they had to support their children (to enable them to) climb into a rickshaw, bus or qingqi. The cost of transportation for handicapped people was also comparatively higher. None of the students came to school alone therefore they were entirely dependent upon their parents for assistance." The study went on to note that "children with only speaking and hearing impairments were less affected by transportation barriers."

The study concluded that "All (those interviewed) agreed that a trained assistant travelling with the child would make transportation safer, however it would be expensive. Public transportation can be made safer by ensuring all involved personnel have basic training in how to deal with people with disabilities."

2.3.2 Examples of costs parents pay for school transport for children with special needs

It is difficult to envision a situation in which a low-income family with one wage earner with a disabled child in a developing country would not pay at least 10% of annual income for school transportation for that child if such transportation were required. These three scenarios illustrate this concern.

1. A cost scenario from Pakistan

To establish an example based on the above report from Pakistan, let us assume that a child with a disability, who must be accompanied by a parent or caregiver, takes a motorized auto-rickshaw to and from school. A typical auto-rickshaw cost in Karachi would be 40 rupees per kilometer for the *two* passengers. (105 Pakistani rupees = US$1*) If a non-ambulatory or semi-ambulatory child were to go to a local school 2 km from a residence, the total round-trip cost would be 160 rupees/day. Multiplied by 180 school days/year, the total cost would be 28,800 rupees per year. Let us assume that this low-income family has an income of 168,000 rupees/year and thus survives on about US$4.40 per day (based on the current minimum wage in Sindh province of 14,000 rupees per month**). The annual cost of transportation for the child, for the short trips to a school at a distance of 2 km, would come to 28,800/168,000, or **17% of annual income**. If the school were further away, the cost would quickly escalate beyond this sum.

* approx. 2016 exchange rate ** effective July 2016

2. A cost scenario from Mexico

As is true in many countries, a disproportionate percentage of the 10% of Mexicans who live in extreme poverty are disabled. Their average income in urban areas is under US$85 per month, of which more than ***half*** is spent on food in order to survive. Surveys show that less than US$8.33 (about 10%) of what is left, on average, goes to pay for public transportation, typically by bus.* But if a child with a disability cannot get to a bus stop, that amount can buy only 13 one-way 1 km trips per month

to school using a three-wheeled door-to-door moto-taxi, or about **10% of average income** for the family, which is typically headed by a woman if there is a child with a disability.** And that sum would only cover around a third of the required trips. Using the less costly moto-taxi is helpful in this case as taxis would cost more, but the mother is still dealing with a difficult decision to send her child to school while still having money to pay for her own transportation if she must work outside her home in order to feed her family.

* Data extrapolated from <www.wilsoncenter.org/sites/default/files/Poverty_Statistics_Mexico_2013.pdf>

** Based on numerous informants concerning the absence of fathers in homes with children with disabilities..

3. A cost scenario from South Africa

A typical lower-income family may have had an income of 60,000 rand per year in 2011.* Let us assume that their child with a disability lives 5 km from school. Assume four such families teamed up for a shared-ride taxi at R14 per km. Then R14 times the 10 km round trip to and from school equals R140 per day, and that amount *divided* by the 4 students equals R35 per day per student. Multiply that by 180 school days, and the cost to *each* family is R6,300/year or about **11% of family income**, even assuming the four families are taking full advantage of the opportunity to work together to reduce the taxi fare.

That is a lot, no matter who pays it. If the family (typically a family headed by a single mother) is unable to incur this added cost, the child may not go to school.

* 2011 census data

2.3.3 Summary comments on transport cost and affordability

The scenarios given above from Pakistan, Mexico, and South Africa are judged by us to be conservative in that they deal with shorter trips to school by children whose parents cannot afford their own vehicle. They are not based on the use of public transport with accessibility features common in wealthier countries, and they assume the use of smaller vehicles which charge lower fares. They are based on the lowest-cost reasonable transportation available, and they are based on the actual conditions of families with disabled children who may be at risk of not going to school due to the cost of the transportation in the scenarios we cite. Strict comparisons are not possible, but families living in poverty are faced with very difficult choices about enrolling their children even in the nearby schools we discuss in the examples above.

2.4 Distance to school and travel times

The greater the distance from school, the longer the walk or the longer the ride to get there. The challenges of walking to school – discussed in Sections 3 and 4 – relate especially to children with disabilities being unable to walk, becoming overly tired by walking, or facing a range of dangers and obstacles that tend to increase as distance to school increases.

Distance to school is also a challenge when riding, due to increased costs as distance increases, road safety issues during transport, and students becoming tired when trip durations lengthen to an hour or more.

Interviews in the Dominican Republic cited typical distances up to 15 km and trip times of 30-60 minutes. Interviews in Pakistan cited most trips at 4-5 km with some up to 13 km. Our interview with a school in Nigeria cited most trips as 8-10 km and up to 27 km, with trips usually limited to one hour but stretching out to two hours during periods of traffic congestion.

A survey of 23 special education schools in the State of Hidalgo in Mexico reported on transportation for 105 selected children with disabilities, whose parents completed the survey while at school.[3] An average trip length of 15 km for all transport modes was reported, with an average trip duration of 45 minutes. In a similar survey, 39 students at a single special education school (CAM-7) in the State of Mexico responded to a question on trip duration. Seventy-four percent (74%) of students reported trip durations of 20 to 60 minutes with 18% reporting a trip duration of greater than one hour.

All in all, our research suggests that travel to day schools via vehicle begins to fall off beyond 15 kilometers from school or a trip time of 60 minutes. Clearly, the longer the distance the greater the likelihood that trip distance and duration will be an increasing factor in discouraging school attendance.

2.5 Trip demand, cost, distance, and geography must be integrated to better understand the role of transportation in promoting inclusive education in local schools

The MSU-AEI survey provides helpful data on trip demand by students in different types of schools. Some of these data point to the way ***affordable transportation may incentivize parents to send their children to local more-inclusive schools***. Forty-three responding schools in Sub-Saharan Africa provided extensive transportation data for the 7,076 students with disabilities that they serve. Survey results indicate that 3,767 (53%) of these students commute to school on a daily basis and 3,309 (47%) live at their schools.[4] Of those who board at their schools, 2,328 appear to board for an entire semester at a time, while 981 (in a total of only 4 schools) board during weekdays only and return home every weekend. The survey results point to three very different transportation situations. Let us assume 180 annual school days for daily attenders, two semesters per year for those who board for entire semesters, and 36 school weeks per year for those who board on weekdays only, while for the moment ignoring the many other variables. Based on these assumptions, one-way trips/year **by walking *OR* riding** are shown below.

3 This study was prepared for this guide. It was drafted by Janett Jiménez Santos and implemented by Sofía Alquicirez Tellez, Promotora Estatal del Programa de Atención e Inclusión de las Personas con Discapacidad en Hidalgo, part of the national DIF and commissioned by the state DIF, and by María Santa Perez Herrera, de la Secretaría de Educación Especial del Estado de Hidalgo. The 23 schools are financed by the national government. The study was implemented in March and April 2016. Analysis of results and comments were provided by Janett Jiménez Santos.

4 Seven schools reported *both* boarding students *and* students attending daily. In such cases we followed any guidance found in the survey results or simply assigned half the students to boarding and the other half to daily attendance at these schools.

43 African schools	# students	trips per year (walking or riding)/student	# total trips (rounded to nearest 1,000)
daily attenders	3,767	180 days x 2 trips/day = **360 trips**	1,356,000 trips
board for semesters	2,328	2 semesters x 2 trips/semester = **4 trips**	9,000 trips
board weekdays	981	36 weeks x 2 trips/week = **72 trips**	71,000 trips
totals	7,076		total = 1,436,000 trips

The transportation implications of these data are startling. Students attending local day schools (five days per week) require 90 times more school-related trips than those who board a semester at a time. The 53% of the students who are daily attenders would account for 94% of the trips. The 33% of the students who live at a boarding school for an entire semester would account for around 0.6% of the trips, ignoring vehicle use for field trips, emergencies or other needs.

On the one hand, trip lengths for students boarding for a semester at a time are typically *far longer* than trip lengths for students attending school daily or for a week at a time. Walking to boarding school is highly unlikely, implying that *all* trip-making is by vehicle. And, of course, boarding schools must cover costs of food and lodging *not* paid by local day schools.

But if parents are expected to pay for vehicular transport while boarding schools subsidize the cost of food and lodging through government subsidies or other income, it seems reasonable to assume in such cases that ***lack of affordable transportation is a critical issue which may – currently and in the future – influence why many students with disabilities will be sent to boarding schools even if given the option of commuting daily to local more-inclusive schools***.[5] That is, the selection of an inclusive day school may be a more costly option *from the viewpoint of a parent paying transportation fares* compared to the option of a special boarding school which *subsidizes or otherwise covers food and lodging* even if it is located further away. In such situations, *making transport affordable to parents* may be a key element in eliciting their support for placing their child in a more inclusive local day school.

Other factors also interact with cost, distance, and geography:

- In many countries, transportation is a secondary consideration when deciding where to locate a school. If short-term costs to acquire a site for a new school are prioritized over transportation costs over the life of the school building, ***long-term transportation costs for students could readily come to more than one-time land acquisition costs***. This problem is compounded when one ministry or department budgets for school site acquisition and another budgets for ongoing transportation costs.

5 Attendance data from 11 responding schools from non-African countries provide a smaller database, but their data suggest that around 80% of the 966 students represented attend on a daily basis. Using a different filter, over 90% of students with disabilities at responding schools in Hong Kong, which we consider representative of many wealthier countries, attend daily.

- Even when a few "key" regular schools are designated as more inclusive schools which are upgraded to better serve children with special needs, the impact on transportation costs will be severe when compared with a scenario where all or nearly all regular schools also serve as many students with special needs as possible. Educators are aware of the difficult issues of selecting sites for schools, given the requirements of children with different types of disabilities. Nevertheless, transport cost and distance issues must be carefully analyzed. Since public school officials are accustomed to everyone walking to local schools in nearly every neighborhood, issues of newly required transportation may not be given enough weight. ***The closer schools are to where students with special needs live, the higher the percentage who can walk or be carried by a parent directly to the school.***[6]

- To understand the impact of distance to schools, it is also important to see transportation issues in terms of geography. Filling up a school bus with 30 children with disabilities at a center 12 km down a straight road from a school is a very different matter from picking up 30 children, even if none live more than 8 km from school, scattered on a network of roads that cover some 50 square kilometers of terrain. ***Everything changes depending on which scenario pertains:*** Cost per trip, ideal vehicle size, routing and dispatching issues, trip time for the average student, number of vehicle miles, even the number of vehicles required is more of a problem even though the students live "closer" to school. The case study from Curitiba, Brazil, illustrates a cost-effective way to address the geography of a large city by managing the routes of buses serving many neighborhoods and many schools.

2.6 Safety concerns

The MSU-AEI survey indicates that safety while walking or riding to school is a key issue in Sub-Saharan African countries. Safety was repeatedly mentioned as a concern by multiple respondents from Nigeria, Kenya, Uganda, and South Africa. These concerns are woven into the discussions of walkability and riding in this guide. Studies continually point to the difficult tradeoffs between safety and school attendance made by parents of children with disabilities.

Unsafe transportation often faces children getting to school in Africa



What to do about overcrowded and unsafe vehicles that were never intended to serve for passenger transport? The photo above shows the aftermath when 135 secondary students boarding at Matsha College in Botswana were transported in an open cattle truck with only two rear tires to return to their rural villages between terms in November, 2015. Eight students were killed and 125 were injured and hospitalized.

Parents in many developing countries have to balance their desire that their children receive an education with their fear for their safety while traveling to and from school. Safety is of even greater concern for parents of children with disabilities and is one reason why such children may never enroll in schools, especially those living in rural areas.

- Source & photo: Mmegi News

6 As noted by the Lanka Forum on Rural Transport Development, in their review of this guide, schools should be built "to cover all parts of a country and not just one or two schools in a city. In terms of transport services this would mean bringing the services closer to people (children in this case) instead of transporting people to services." (Message received Oct. 24, 2016, from Nilusha Dhanasekara, Coordinator of the LFRTD, Sri Lanka).

Even in wealthy countries, safety of various kinds is a major concern. People walking in the USA are more than twice as likely to be struck by a vehicle in locations without sidewalks. In addition, "More than 7% of high school students reported missing at least one day of school in the past 30 days because they felt unsafe from bullying or violence either at school or on their way to or from school."[7]

This is even more applicable in developing countries, as noted in comments by heads of schools responding to the MSU-AEI survey, in the case studies, and in the report on transport in Karachi. The fact that motorcycle riders constitute a very high proportion of road fatalities is all too real to parents about to send their child to school on a motorcycle in Nigeria or as reported in the case study from the Dominican Republic.

2.7 Advances in technology

The rapid growth of communication technologies: As cell phone and smartphone usage increases, parents find it easier to communicate with each other and arrange for students to walk together to school or to form a group with adult supervision, sometimes called a "walking school bus." (See Section 4) As noted in Section 7.3, this trend provides an opportunity for many schools to aid this process, for example by keeping lists of cell phone numbers of parents in order to assist parents in arranging rides to school. Parents also may be able to increasingly stay in touch with their children remotely while they are en route to school, possibly easing parent concerns about their safety.

Computer access: Currently, computer access remains limited in many locales, particularly in rural communities in developing countries. Funding is scarce for computers and tablets, and a lack of computer literacy training is an additional concern.[8] Electrical power, connections with the internet, and equipment are frequently unavailable or unreliable in developing regions, as noted in the case study from Jos, Nigeria. Advances in technology may enable more children with disabilities to supplement their experience at school while at home, if and when such technology becomes more available and economical for them. These and other advances in technology, even in the poorest areas, may impact transportation needs in unforeseen ways in future years.

"Distance learning": Distance education provides instruction to students who may not always be present at a school. This "distributed instruction" allows the instructor, students, and what is taught to be located in different places. Instruction comes directly to the student, who would not need to attend classes in an actual school building. This approach has raised concerns in the USA and elsewhere because parents of such students must take on the role of teachers. Social skills and communication skills in the USA are often considered of paramount importance for students with disabilities. Such skills are frequently included in individual education programs prepared for these students.[9] Distance learning could reduce transportation requirements for some children with disabilities while adding to transportation requirements for resource teachers needed to work with their parents, often in remote villages. Online education may have a potential unknown to development specialists who are older, but may

7 Downloaded March 6, 2016 from Safe Routes to School National Partnerships. Go to Healthy Communities Quick Facts and Stats at saferoutespartnership.org.

8 For example, see Ajuwon, P: 2012. A Study of Nigerian Families who have a Family Member with Down Syndrome. Journal on Developmental Disabilities 18 (2), 36-49.

9 Remote teaching potentially has major benefits for students with some types of disabilities. For example, many students with speech processing disorders or sensory disabilities can interact with others more effectively using the distributed nature of many distance learning applications.

present problems which are hard to grasp by younger technically oriented persons in wealthier countries if they do not have real-world experience, for example in those rural areas where children and their families live in poverty.

2.8 Conclusion: Both public funding and local solutions are needed to make school transport affordable

Many countries use variants on two main approaches to address school transport needs:

- Countries may provide parents with financial subsidies from national, state/provincial, and/or local levels to assist paying for the required transportation, as seen in our case studies from Japan, Costa Rica, and India.

- National or local education ministries or departments may directly operate their own transportation or contract with others to provide school transport, as occurs in our case studies from Pakistan, Brazil, Mexico, and the USA.

New approaches to mobility management and ridesharing, aided to varying degrees by new communication technologies, promise other alternatives based on the creativity of local actors in their use of local and other resources. These approaches should be vigorously explored and developed. In most cases – and precisely where there is the maximum need for transportation to school in poverty areas – public funds will be required to provide the incentives for stakeholders to implement pilot projects and then scale up successful approaches to provide major transportation improvements.

One of the key purposes of this guide is to put the challenge of the significant cost of school transportation on the agenda of agencies which will need to pay for it. These costs can mount into the hundreds of $US per student per year for students who are unable to walk long distances. Transportation funds may be needed from departments and ministries which in the past have not even considered school transport costs as part of their mandate. Other revenue streams from NGOs and individuals need to be increased to supplement the contributions of the faith communities and other agencies which currently provide much of the funding for schools for students with disabilities from poorer families.

The situation does not necessarily change when we turn to issues around walkability. To get to and from school in rural areas, extensive work needs to be performed on footpaths and roads through initiatives at national, state/provincial, and/or local levels. Education budgets may need to allocate such funds in the absence of other sources to improve and maintain footpaths at least in the vicinity of schools where they may be used by hundreds of students.

These costs are considerable and need to be accounted for along with the costs of teacher training, teacher salaries, accessibility improvements to schools, and other initiatives.

Case study: PAKISTAN

Transport to schools in Sindh Province

by Amin Amir Ali Andani, Program Manager, NOWPDP

Introduction

Pakistan's population of approximately 192 million ranks it as the sixth largest country in the world. An estimated 27 million people have a disability, which is more than the combined population of Sweden, Austria, and Switzerland (British Council, 2014). Some 43% of persons with disabilities in Pakistan are children ages 1-15 years (HHRD, 2012). Nearly two thirds of those with disabilities live in rural areas. With almost no accessible public transportation and limited access to mainstream schools, the majority of children with disabilities are unable to attend regular public schools in Sindh. The concept of special education is quite popular in Pakistan and there are numerous government and private-run schools that offer accessible infrastructure accompanied by some transport services. But with a small number of special schools compared to the demand, there is an immense need to make mainstream schools accessible with a cheaper mode of transportation. Without any accessible mode of public transportation, the principal reliance of children with disabilities in Sindh is on school vans, auto-rickshaws, qingqis, and tricycles.

Condition of schools for persons with disabilities in some areas of Karachi and Sindh

Karachi is part of the urban Sindh and it is considered the economic hub of Pakistan. In order to understand the current situation, NOWPDP visited five special education schools in Karachi and fifteen schools in other parts of Sindh province. The majority of the special schools based in Karachi had reasonably good infrastructure and one or more school buses. The fifteen schools in other districts of Sindh had low attendance with fewer and poorly maintained school buses. The primary observations during the study were as follows:

- The majority of the schools provided a free transportation option of inaccessible vans for students with disabilities. Students travelled without safety belts, etc.

- Students coming from areas where the van service was not available used auto-rickshaws, tricycles, and qingqi rickshaws.





Left, fleet of buses at the Government Special Education Complex, Karachi.
Right, buses have no access features.

- The estimated transportation cost borne by the schools was US$60 per month for each student. If a person was able to take an auto-rickshaw to reach school, the average rate was around US$0.20 per km, or around US$40 per month for daily trips of 10 km.

- The parents of children with disabilities had to personally assist their children to the schools. When using a means of transportation, they had to support their children to board and ride in a rickshaw, bus, or qingqi; hence their cost doubled in myriad cases. (See Section 2.3.1)

Other transportation modes

Auto-rickshaw



Auto-rickshaws are a common transportation medium for persons with disabilities, including school children

Auto-rickshaws are a motorized, three-wheeled mode of transportation, usually utilized by one person or by a group of customers at a time. With no accessible means of public transportation, people with physical impairments often rely on auto-rickshaws due to their low floor and their ability to carry a folded wheelchair and an assistant. As noted, their approximate cost per km is US$0.20

The Rickshaw Project: Better access

NOWPDP is a leading organization working with people with disabilities in Pakistan. This agency has developed a prototype auto-rickshaw that is more accessible than conventional models. These rickshaws have been retrofitted to make them accessible both for the driver and for a passenger with disabilities. The redesigned shock-absorbers make the ride smoother, while seatbelts have been added for the safety of driver and passenger. A separate compartment is provided to store a folded wheelchair used by the driver or a passenger. The photos below detail wheelchair storage space, seat belts for the driver and passenger, and hand-controlled functions that permit a driver with disabilities to drive the auto-rickshaw.









Qingqi rickshaw

Qingqis are three-wheeled hybrids of a motorcycle and auto-rickshaw with a seating capacity of six riders. While safety is compromised through this mobility option, qingqis are almost three times cheaper than conventional auto-rickshaws.



Qingqis are an inexpensive mode of transportation in Pakistan. Access for people with significant physical disabilities is difficult, but passengers with minor disabilities can be accommodated. - Photo tribune.com.pk, March 4, 2011

The case for a cycle

NOWPDP did research in Karachi with numerous individuals with lower-limb impairments who were either working or going to school. It was found that the majority of them favored using a tricycle for travel. The primary reason identified by the group was affordability. A Pakistani-built tricycle costs between US$70 and US$130. While the tricycle was identified as the first option that took them out of their homes, the majority recognized this as a difficult means of transport. For example, Vishal Kumar, who was affected by polio, works with NOWPDP. His home is almost a ten-minute drive away but it takes him nearly 1.5 hours to reach his home on his tricycle. Accordingly, it became clear that while an accessible cycle built in Pakistan is a good option due to the affordability factor, numerous design defects restrict its efficiency. Considering this, a countrywide Accessible Cycle Design Challenge was launched by NOWPDP for designing the most accessible cycle under a production cost of US$100. The winning design looks better, rides better, and has more storage space. The first prototype of the winning design is being developed by a Pakistan-based company called Autocom. It will be marketed through various partner organizations.





A conventional tricycle used in Pakistan by people with physical disabilities (top) and the winning design (bottom)

Recommendations to consider in order to improve school transport of children with disabilities

- At least 20 existing or new mainstream schools in each district of Sindh should be identified, to be built at ground level or with minimal elevation. Such schools should be equipped with basic accessibility elements like ramps and accessible washrooms. For the transport of children, an accessible vanpooling service should be operated. Two vans should be dedicated to each district.

- Government or private intervention should make conventional auto-rickshaws more accessible for persons with disabilities. Essential elements like seat-belts, a compartment for a wheelchair, and a climbing step should be added.

- Current plans for bus rapid transit corridors in Karachi should include complete accessibility for persons with disabilities. Existing BRT corridors in Lahore and Islamabad are stated to be only partially accessible. Karachi should learn from this experience.

- The design elements of accessible tricycles should be improved so that people with disabilities can commute as rapidly as possible in a comfortable way. The recommended design will be more comfortable and require less exertion. It should be less accident-prone, more compact, and aesthetically pleasing. (See the discussion of smaller vehicles in Section 6.4)

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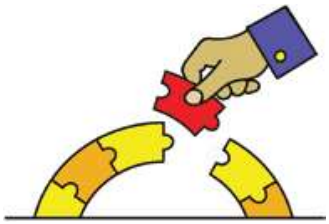
PART 2.

WALKING AND RIDING TO SCHOOL

Sections 3-9

- Rural walkability
- Urban walkability
- School-operated vehicles
- Public transportation
- Resource sharing and mobility management
- Sources of funding
- Travel training for children

SECTION 3. RURAL WALKABILITY



Purpose of this section: *To discuss walking to and from school in rural areas. The focus is on children with disabilities, but much of this is relevant to* ***all*** *children living in rural areas who face daily walks to and from school. Obstacles that affect children with disabilities are discussed, concluding with practical recommendations to improve walkability.*

3.1 Introduction

Most children with disabilities in Africa and Asia live in rural areas. Even in North and South America, approximately a quarter of the population is rural. Access can be a problem for everyone in such areas if distances are great and buses or other vehicles are not available. In many countries, "footpaths do not offer a comprehensive network and are generally built without reference to recognised standards of accessibility."[1] Walking (or being carried by a parent) long distances to school on unsafe footpaths or roadways is a problem facing millions of children with disabilities.

Road and footpath conditions also make it difficult or impossible to use a wheelchair, bicycle, or tricycle to travel to and from school, even for those who have access to these mobility aids. The trip itself may present further obstacles such as fording a river in flood or encountering dangerous animals. For girls, fear of molestation or rape is worsened if they must travel in the dark to get to school in time. An additional challenge facing these students is that late arrival is frequently punished which, unfortunately, is a common practice in Africa south of the Sahara.



A teacher accompanies these children (who do not have disabilities) after a rain in Tanzania - Photo courtesy of Mdori Centre, Tanzania

Pioneering research by Gina Porter and others concludes that "Basic physical ability to walk a long distance to school helps shape school enrolment patterns in all the remote villages where our child research participants are resident. Children are not enroled at school until they are physically able to make the journey to and from school each day: this delays the age at which children start school, especially when the child has no older sibling or children resident nearby with whom they can travel… Moreover, these long journeys through potentially hazardous environments add to the other factors which may constrain and curtail a child's educational opportunities, ultimately tipping the balance between the decision to attend or to abandon school, and thereby affect

1 This is a representative quote that would be echoed by most agencies in developing countries. This one is from a July 20, 2016, report in the Fiji Times, from the Asian Development Bank's 2016 Pacific Update Conference at the Univ. of South Pacific, from a report at the Pacific Disability Forum.

their future livelihood opportunities and life chances… Disabled children are unlikely to attend school at all, in such conditions."[2]

3.2 Distance and terrain issues for children who walk

Note: See Section 2.4 for comments on distance to school issues for children who ride in vehicles.

It is often difficult or impossible for children without disabilities to walk to school. The situation is even more daunting for children with disabilities – or those who carry them – if they live far from school. This is especially so in hilly terrain where steep climbs can quickly exhaust both children and also adults if such children must be carried. There are few studies which show the statistical correlation between distance from school and the ability of children with special needs to be enrolled and to consistently attend school. In all events, this correlation is so obvious that it is clear to anyone who lives in such situations, most of all to the children themselves. It is consistently noted by respondents to the MSU-AEI survey.

In spite of this clear relationship between distance and getting to school, Gina Porter notes that "The impact of the distance between home and school on learning achievements, in particular, has received little specific attention in the literature."[3] One study in Rwanda found that most children with disabilities did not attend school and those who did attend dropped out after a few years, often due to difficulty getting to school.[4]

A detailed study of primary schooling in Ghana,[5] with field studies in Upper West and Eastern regions of rural Ghana, found that "the closer to secondary school a child lived, the more likely s/he would be sent to primary school, because continuity of education was feasible."

Studies in the USA show a direct relationship between distance and walkability, at least for children without disabilities when they have a choice of how to get to school: The shorter the distance, the more likely that a child will walk to school. Approximately 81% of students living within a mile of school walked or biked, while only 30% of those who lived 2-3 miles from school walked or rode a bicycle. "Lower household income, single-parent households, shorter distance to school, and attending school in a larger town were all significantly associated with a greater likelihood of walking or biking… Distance to school is strongly associated with how children get to and from school. The proportion of children walking or bicycling to school is much greater among those who live closer to school."[6]

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2 Porter, G., et al.: 2010. Where dogs, ghosts and lions roam: learning from mobile ethnographies on the journey to school. Children's Geographies 8 (2), 91-105.

3 Porter, G. et al. 2010. 'Youthscapes' and escapes in rural Africa: education, mobility, and livelihood trajectories for young people in Eastern Cape, South Africa. Journal of International Development 22 (8), 1090-1101.

4 Physical Environmental Barriers to School Attendance among Children with Disabilities in two Community Based Rehabilitation Centres in Rwanda, Baptiste, et all, 2013. Rwanda j. see data p.12. Reasons for lack of attendance, in each case cited by 77% to 89% of respondents, included "disabled child cannot walk that distance," "it is not safe to walk," and "the road is not well maintained."

5 Avotri, R., et al. 1999. Gender and primary schooling in Ghana. Institute of Development Studies, University of Sussex.

6 Safe Routes to School Travel Data: A Look at Baseline Results from Parent Surveys and Student Travel Tallies. Prepared by the National Center for Safe Routes to School, January 2016 from the Executive Summary (of data collected April 2007 to May 2009) *Go to saferoutesinfo.org.*

3.3 Walkability data from our survey of African schools

Respondents at Sub-Saharan African schools were highly responsive when answering questions about walking or bike-riding to school, with 34 to 45 schools responding to the four questions on walking.

Questions about walking to school	Yes	No
Is it practical for some students with disabilities to walk to your school?	29 (64%)	16 (36%)
Are the walkways usable by students with disabilities?	13 (38%)	21 (62%)
Are the walkways safely separated from the road?	4 (12%)	30 (88%)
Are the walkways otherwise safe for students who walk?	9 (26%)	25 (74%)

Open-ended questions

African respondents to the MSU-AEI survey often went into detail about walkability concerns. Here are some typical responses concerning problems of walking to school:

- "Water makes the roads muddy, there are many motorbikes on the road, children are barefoot, far distances (kms)"
- "Crossing the road (highway); the rest of the trip is quite safe for students"
- "Muddy roads without shoes, long distances"
- "Crossing the road, being sexually molested along the road (a girl with autism no longer comes to school because she was repeatedly molested on the walk there)"
- "Walking is not safe for there are no special path/walkway constructed by the government or agency to help solve problem of PWDs walking along the road"

These conclusions are echoed by comments in our case studies

- Kenya: The Bobleo Center cites "poorly maintained roads" and "obstacles to transportation by walking."
- Tanzania: The case study comments that the 225 children identified with disabilities must walk to Karatu district's 101 primary and 27 secondary schools. Walking long distances causes fatigue.
- Mexico: The "CAM-7" special education school in Valle de Bravo notes that very few children with disabilities walk to school. Some children walk with their parents, typically their mother. Walking time is between 5 minutes and several hours.



All-weather footpaths, such as to this school in Luang Prabang, Laos, help all children on their way to school.
- Photo courtesy of Gerhard Menckhoff

- Mexico: Our survey of 105 children attending special education schools[7] in the State of Hidalgo, Mexico, found that 10% of these students walked both to and from school. Generally, those walking indicated they did so due to lack of transport.

- Japan: The data from Japan points to approximately 13% walking to and from school.

- Nigeria: "Only one student walks to (the Open Doors Special Education Centre), while the others all use vehicles. Walking is usually out of the question. There are no sidewalks…"

- Dominican Republic: In structured interviews, only one of three special education schools reported any children with disabilities walking to their school.

A report from rural Angola notes that it is assumed that children walk to school. If children with special needs cannot walk, they do not attend school.[8]

3.4 Using a wheelchair, bicycle, or tricycle

A question about the practicality of riding a bike to school also received a large and negative response to our survey questions.

	Yes	No
Is it practical for some students with disabilities to ride a bike to school?	13 (26%)	37 (74%)

This may be the reason that fewer schools responded to our followup questions regarding bike riding. The following suggestive responses point to safety issues and the inability of students to afford bicycles. They do point to the ability of many schools to safely store bicycles.

Other questions about riding a bike to school	Yes	No
Are the bicycle pathways usable by those students with disabilities?	5	9
Are the bicycle pathways safely separated from the road?	3	10
Are the bicycle pathways otherwise safe for students to ride?	4	9
Could the bicycles be kept safe from theft on school grounds when not in use?	9	4
Could those students with disabilities who can ride a bicycle actually afford a bicycle?	3	10

One respondent noted that "Only a few children, mostly boys, have access to a bicycle to get to school. Cycling appears to be considered inappropriate for girls." Some use of bicycles is reported in surveys and structured interviews from Pakistan, the Dominican Republic, and Mexico.

7 See foonote 3 at Section 2.4.
8 Telephone discussion with Lynn Cole of RISE International, August 19, 2016. RISE has raised funds to build more than 100 government schools in operation in rural Angola.

Understandably, a wheelchair or cycle is seldom mentioned as a means of travel to school for younger students with disabilities. Yet in many countries tricycles are in use by adults with mobility disabilities who have the upper body strength to navigate using hand-operated pedals. They appear to be a potential means of travel for those older students with disabilities who would be able to use them.

Research is needed on bike improvements. Bicycles and tricycles need to be relevant to their terrain.[9] Small enterprises or cooperatives are reported in some countries which are able to rent and maintain bicycles. In some cases, such enterprises might be initiated specifically to help all students travel longer distances to and from secondary schools. They could serve secondary students with some disabilities as well as parents using bicycles to transport younger primary students, assuming the bike paths are safe.



Photo above shows an all-terrain "spider" wheelchair built to get a child to school over rough terrain in rural Mexico. The projections enable other children to help push and pull the wheelchair. - Photo by permission of HealthWrights

Research and pilot projects are needed to address safety concerns when adults carry a child with a disability by bicycle. Besides a helmet and safety belt, the bike might best have a stand that can be deployed *under* the bike, not to one side, to assist the bike to remain vertical while a passenger is boarding or alighting. The carrier behind the seat on a bike could be better equipped to sustain the weight of a child with a disability, but only if the seat or similar device were solidly attached, typically with a safety belt or other method to reduce the risk of the passenger falling.

3.5 Conclusions and recommendations

There are few more intractable issues than that of improving walkability in low-income rural areas for those children whose disabilities would permit them to walk to and from school in more accessible terrain. Certainly no issue addressed in this guide is more daunting. The problem is compounded by the inability of many rural schools, in many countries, to meet the educational needs of their other students, let alone students with disabilities.

Choices facing many parents include (1) that rural children not be sent to school, or (2) that they migrate to cities or towns where they either can board at a school – typically at a school just for students with special needs – or they can reside locally and try to find transport that is economical enough and accessible enough to get them to a day school. A third approach is that they take part in some type of distance education with support from itinerant teachers.

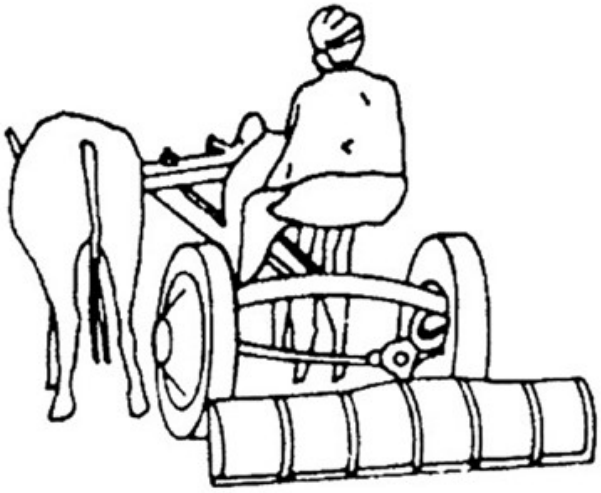
Initiatives are needed to provide more choices for parents. Some initiatives may best be carried out through long-term planning and phased-in improvements sponsored by government agencies at national, regional, or district levels. Such agencies would include ministries of education, public works,

9 One example is "Buffalo Bikes," which are strongly built and use direct drive rather than gears.Go to <buffalobicycle.com>.

transportation, and finance. These initiatives require improvements to roads and footpaths and represent an additional critical reason why such improvements are needed. Planning and financing should embrace both the original construction of improved footpaths as well as their long-term maintenance. Other initiatives may best be carried out by more local agencies, including school districts and individual schools.

Recommendations include the following:

- ***The largest single need is for upgrading and maintaining rural footpaths,*** and roads used as footpaths, for the sake of all children including children with disabilities who need to get to and from school. In many cases, paths near schools are well-trodden and packed down by children nearing the school. As an initial step, these paths need to be inspected for accessibility and upgraded as needed. A major criteria for such projects would be the existing use of such footpaths for travel to school, with a special emphasis on footpaths leading both to newly inclusive schools, that welcome children with disabilities, as well as to special education schools. Standards should be set. For example, local schools could be required to meet a standard such as "Footpaths will be maintained up to at least 500 meters from the school."

  Grading rural roads and footways can sometimes be done at less cost using animal traction. - With permission of Tillers International

  While such well-used paths clearly should be prioritized, less-used paths should not be ignored. An analysis of the costs and benefits of improving walkability for children with disabilities, and any adults or older children who accompany them, may yield surprising results. It is important to balance a robust analysis of construction and maintenance costs with an equally robust analysis of cross-cutting social benefits to individual students, and to society in general, when long-term improvements are made by enabling children with disabilities to attend school and become more productive members of society. We recommend that the international development community prioritize such initiatives as part of the broader task of improving mobility in rural developing regions. Again, maintenance of improved footpaths is equally important as their initial development.[10]

- ***Signage should be placed to warn drivers on rural roads to slow down*** in areas where children are walking to school. At busier intersections near schools, crossing guards should be used to supplement safety instruction for the children themselves. (See Section 4.2)

10 Gina Porter notes this report from a 14 year-old girl in Ghana: " 'Seeing snakes on the way home is a common thing. *But because they always clear both sides of the road* we usually see them first. For example, about two weeks ago we saw a big snake crossing. We threw stones at it and waited till it crossed before we continued our journey'… Over 50% of boys and girls surveyed in the remote rural settlements of Ghana reported dangerous animals (usually snakes) on the journey to school." Maintenance activities such as scything down tall grass to enhance access to a footpath are as important in rural areas as improvements to sidewalks and street crossings in urban areas. See Porter, G. et al. 2011. Mobility, education and livelihood trajectories for young people in rural Ghana: a gender perspective. Children's Geographies 9 (3-4), 395-410. Our emphasis added.

- ***Every effort should be made to separate pedestrian footpaths from roadways,*** especially where driver vision is limited and children (and all other pedestrians) are hidden from view.

- ***In mountainous terrain,*** mobility-impaired children could be carried by other people or animals. Work could be done on the design and adaptation of saddles and other assistive equipment. Small improvements to the width and surface of footpaths could assist those who carry children with disabilities up steep inclines.[11]

- Where possible, ***schools should assist parents to find others to accompany their children***. Parents instinctively seek the safety of having their children walk in groups or to be accompanied by older siblings on their way to school. Some of the Safe Routes to School practices found in the next section may also apply to children in rural areas.

11 Suggestions by Juan Carlos Pineda, in Colombia (translated from Spanish by the editor and posted in our June 2004 newsletter).

Case study: TANZANIA

Walking is the only way in the Karatu district

by Susan Rickert

Their own two feet are the only means of transportation for almost all of the 225 children identified with disabilities who are able to attend the 101 primary and 27 secondary schools in the district of Karatu, Tanzania. With some 50,000 children of primary school age, it is clear that most children with disabilities in Karatu District do not attend school. Many children walk long distances to reach the nearest school and fatigue is a huge problem for those who may arrive late because of lack of transportation.



Mr. Honorati Bayyo is a teacher by profession and currently the Karatu District Special Needs Education Coordinator. He is faced with the daunting task of identifying and helping children with disabilities receive an education. Mr. Bayyo reports that there are programs available at three primary schools for children with hearing or visual impairments or with intellectual disabilities. Braille or teaching in sign language are offered in separate programs at these schools.

I visited one of the three schools – Ganako Primary School – where I met with three special education teachers and Mr. Bayyo. I watched a demonstration of the teachers with their students (photo). The children and teachers had all walked a long distance to the school to demonstrate their teaching and learning. In the Karatu District, a start has been made. But for children with mobility impairments – such as those needing wheelchairs or crutches – transportation is either non-existent or unaffordable. Such children are not visible among students in primary schools in the Karatu District. One Tanzanian correspondent, Eliphas Daudi, sums up the challenges*: "Remoteness in some areas, transport expenses that cannot easily be afforded by parents, [pedestrian paths] which are not modified…, a general public which knows very little about the needs of children and people with disabilities, neglect, discrimination, and stigmatization in the society."*

This case study was prepared by Susan Rickert in late 2015, based on her interviews including teachers and administrators in the Karatu District. - Photo by the author

Case study: KENYA

A rough road with a happy ending



Travellerspoint - Creative Commons

Children with disabilities in West Pokot County in western Kenya face a long hard road ahead. Brother Patrick Misiati, a leader among the seventy teaching brothers of the Catholic order of St. Charles Lwanga in Kenya, reports that "a child who is born lame is considered a curse and in many cases she or he may be killed or mistreated by the parents… Parents tend to hide them in their houses because they do not want it known that they have a child with a disability."

In early 2015 Brother Patrick and his colleagues inherited the Bobleo Center from another agency boarding 36 such children. He notes that "most of them are mobility impaired with a missing limb… Many are brought to the home or we go out ourselves to identify them in local communities."

At first, Brother Patrick decided to send these children to the local public primary school. Along with the children, he "inherited" a 16-year old van with high maintenance costs that needed to be replaced. It was soon clear that this aging vehicle was not going to get the children to school along a badly maintained road. Complicating matters, more and more children were added due to the relative safety and caring staff at the center. The population quickly grew to 60 with about 15 using wheelchairs and having to be wheeled to the local school. But transportation by walking or rolling in wheelchairs also became impossible as wheelchairs broke down due to the rough road and staff became fatigued by having to make multiple round trips due to a lack of wheelchairs.

But transportation was not the only problem. Kenya had a recent "reform" of their education, opening the schools to all but with little preparation of additional classrooms or teachers, let alone teachers equipped with the resources needed to receive children with a variety of disabilities. Teachers often face classrooms of 75 or more children. One can imagine the difficulty of adding more children with disabilities to this mix. In one instance, one of the children using a wheelchair fell and suffered multiple fractures.

This was not working! A change of course was needed. "We have now opened a primary school at our center," Brother Patrick reports. "This center is now serving those children who cannot walk to school."

It had been planned to move as many disabled children as possible out of the more restricted environments of a center just for such children, to a public school where all children could study and socialize together. This approach proved impossible due to a combination of attitudes in the region, poorly maintained roads, a lack of vehicles, obstacles to transportation by walking, and a public school system which was not yet resourced to assist children with disabilities.

Instead, the Bobleo Centre has started their own school for the 65 children with disabilities who currently board at their centre. ***In addition, the Centre is now enrolling 70 children without disabilities who live in the area,*** providing a more inclusive environment while charging a fee which in turn helps to subsidize the education of the children with disabilities who live at the school.* The Bobleo Center is now a boarding school providing a more inclusive education by also becoming a day school for other children in the community.

This "hybrid model" solves daunting transport challenges while becoming more inclusive at the same time. Section 7.2 discusses this and other community-based approaches.

***From followup telephone interview, December 17, 2016**

This case study was prepared by Susan and Tom Rickert based on meetings and correspondence with Brother Patrick Misiati in Kenya and in the USA.

Case study: LESOTHO

A boarding school lacks transport

by Susan Rickert



Travellerspoint - Creative Commons

Lesotho is a semi-autonomous country surrounded on all sides by South Africa (see map.) The country has a population of over two million, of which a reported 3.7% have a disability. Lesotho has a total school enrollment in excess of 400,000 pupils and more than 20,000 (5%) are stated by the Ministry of Education and Training to have one form or another of disability.

I visited the Thuso Centre for children with disabilities in Lesotho in 2004 and 2005, when it was a boarding facility for 25-30 children with multiple disabilities. Transportation to the children's homes on major school holidays was not funded and children and their families struggled financially and physically to reach the school. Some had to drop out due to transportation costs. In 2007 an NGO provided major accessibility improvements to the school's buildings and surroundings. In addition, the government is now paying a formerly volunteer staff. The Thuso Centre has grown and other schools elsewhere in Lesotho have been established.

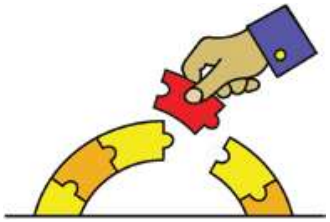
However, in spite of these improvements the transportation problems remain. The Thuso Centre's Director, Mamonuku Mofilikoane, reported in 2015: "Due to the scarcity of special schools in the country, at the moment we have 80 children with intellectual and multiple disabilities. It is very difficult for the children to travel to school due to lack of transport. Some would come a month or two after the school already opened, due to lack of transport and parents not able to pay for their transportation from far places… Those who are needy… sometimes fail to come to school when they don't have funds to cover transport within their families."

The need for transportation for other reasons is also evident. Ms. Mofilikoane reports that "We don't have transport of our own at the school and this becomes a problem when we have an event or emergency illness among the children that need to be taken to hospital… (We also need a vehicle for) teacher follow-up activities with parents about their children's work or when children experience abuse within the family."

Since there are no vehicles at the Centre, expensive taxis must be hired in an emergency, eating into meager funds. The lack of transportation is one of the biggest challenges faced by the Thuso Centre. Although transportation is less of a problem for boarding schools than for day schools, the lack of vehicles nevertheless impacts the quality of education and the ability of children with disabilities to access that education.

This report was prepared by the author based on her visits to the Thuso Centre and correspondence with the staff and director. Section 5.6 reports on a similar situation of a boarding school in Cameroon without a vehicle for use in emergencies.

SECTION 4: URBAN WALKABILITY



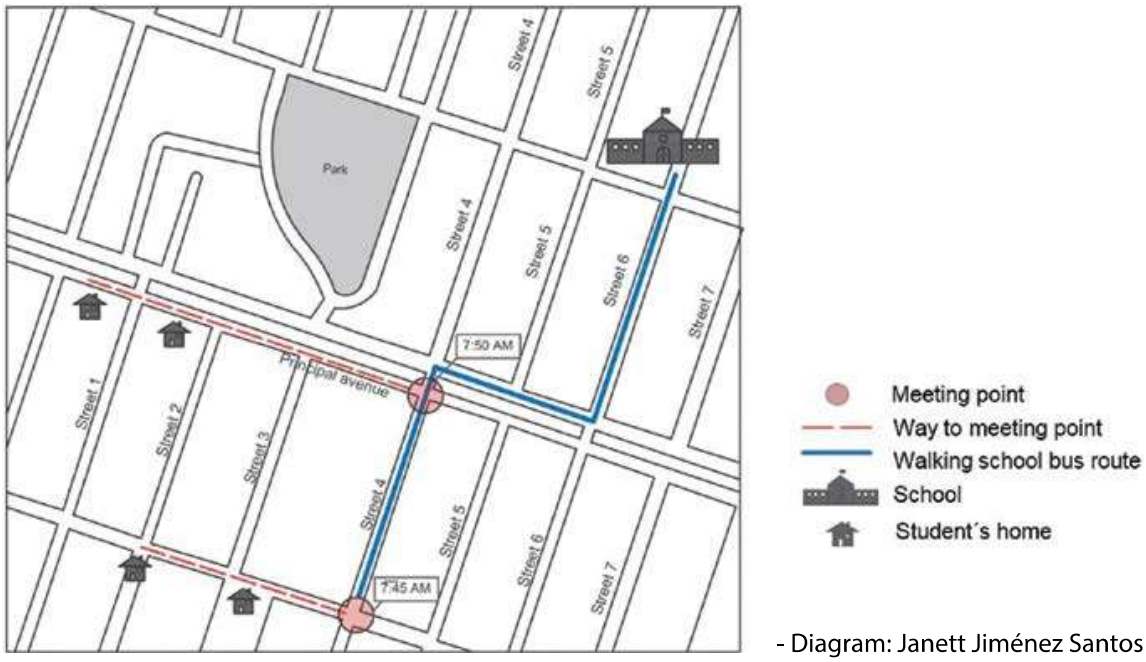
Purpose of this section: *To discuss walking to and from school in cities and towns. This section is relevant to all school children. The suggested actions would especially enhance travel to school for children whose disabilities do not impede walking in safe conditions.*

4.1 Introduction

Clayton Lane observes that although 70% of all trips are on foot in Indian cities, "there are no footpaths in most communities in cities in India, and where there are footpaths, they tend to be blocked by utility boxes and trees and cars parking on the sidewalk… There's a fundamental right that's not being addressed."[1] This section will deal with that fundamental right as it applies to children with disabilities on their way to school in all countries. For such children, the priority is to achieve a safe environment. Accessibility should be considered for different pedestrian groups, including children with disabilities who might travel by foot, wheelchair, or stroller, or who may be carried by a parent or caregiver. This section provides suggestions to promote safe walking routes, particularly for the pedestrian infrastructure in cities and towns.

4.2 Walkability to and from school or bus stop

Here are some ideas about increasing "walkability" to and from school.



- Diagram: Janett Jiménez Santos

1 Clayton Lane, CEO of ITDP in "Perspectives," International Development Program, April 11, 2016.

The "Walking School Bus" program works by grouping school children so they can safely walk together to and from school or a school bus stop while being escorted by one or more adults. The program can be as informal as two families taking turns walking their children to school or a bus stop, or as structured as a designated safe route with meeting points, a timetable and a regularly rotating schedule of adult supervision (e.g. by a parent or volunteer) for each group of children. The walking route picks up school children along the way at designated meeting points or at homes. It is especially suitable for children who live within 1 km of the school or for those who can be taken to a "Walking School Bus" meeting point. The planning process for this program contains the following elements:

- ***Start the Walking School Bus program on a small scale***

  It often makes sense to start with small groups to demonstrate how the program works. The program can then grow and build upon this initial experience. Coordination, adult supervision, and attention to safety, training, and liability concerns are all required. The school staff, local traffic police, and community leaders will likely be involved.

- ***Plan for walkability, prior to starting the program, by taking these actions:***

  - Advocacy for the program.
  - Identification of safe routes to school by first walking the routes without children in order to check sidewalks or paths, pedestrian crossing points, and the numbers and speeds of vehicles.
  - Identification of adults to supervise the children who are walking.
  - Sorting out logistics including schedules and emergency response plans.
  - Publicity to help increase participation.

- ***On the walk to school:***

  - Watch out for children's safety when walking in traffic.
  - Advocate for the use of crossing guards.



Photo at left: Crossing guards need not only be at the school. They can also be at dangerous intersections which many children need to cross to get to and from school. The Safe Passage program in San Francisco, USA, unites neighborhood groups, parents, youth services, and schools in order to make neighborhoods a safer place. Trained volunteers are posted at high-risk corners along the route to provide an adult presence and insure safety. - Photo by Tom Rickert

- ***Teach safe walking techniques to children with disabilities who can walk:***

  - Explain the importance of walking together, to be easily visible, to look out for vehicles, and to cross the road safety by obeying traffic signs, signals and instructions for crossing.

- Offer tips to promote safety, for example by avoiding distractions such as electronic devices, by crossing the street only at a designated crosswalk or intersection, by taking extra care at crossing points, and by walking on the sidewalk if one is available. If there is not a sidewalk, all pedestrians should walk on the side of the road that faces oncoming traffic. These points should be repeated and discussed. It is important to check that children understand. Do not assume that skills will be remembered.

School authorities should ***coordinate with city departments*** such as traffic police and traffic engineers to make routes to school safer. If possible, they should train crossing guards, especially volunteers, to shepherd children across dangerous intersections. And regular police and traffic police should be especially on the lookout for criminal activity, loose dogs, unsafe drivers, and other hazards.

4.3 Some design elements for safer walkability to school or to school bus stops

Upgrade the built environment to achieve safe routes to school and to avoid accidents. This will probably involve multi-year costs and require a step-by-step program over a period of years. It will be important to note the benefits for the entire community in order to gain public support for the required funding.

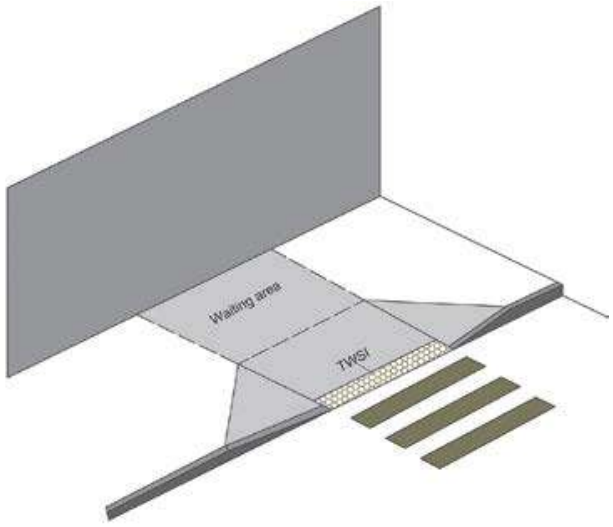
Elements of design for safe routes to schools should ideally include the following:

<table>
<tr><td colspan="2">(1) Sidewalks or pedestrian paths should have an adequate width, provide a continuous surface with a continuous accessible path for wheelchair users, and be free of obstacles. Construction work should be protected with temporary barricades and safe detours.</td></tr>
<tr><td>If there is no sidewalk, avoid having children walk on the road by having a separate pedestrian path adjacent to the roadway. The walking path can be enclosed by temporary elements, such as bollards.

- Abrams Elementary School, Bessemer, Alabama, USA, 2012 (bollards added to image)</td><td>  </td></tr>
<tr><td colspan="2">(2) Pedestrian crossings should include enough space for the waiting area on the sidewalk, as well as curb ramps or raised crossings so that pedestrians can cross the intersection without barriers. Tactile warning strips (TWSI in the diagram below) should be placed close to the curb and aligned with curb ramps on the opposite side of the intersection. Crossings should be marked on the road (e.g. by zebra stripes).</td></tr>
</table>

If there are no obvious pedestrian crossing points, consider the safest pedestrian crossing point, the "pedestrian desire line" where people normally wish to cross, and the width of the road. If the road is too wide, use pedestrian islands or medians. Also consider the need for good visibility between vehicle drivers and pedestrians.

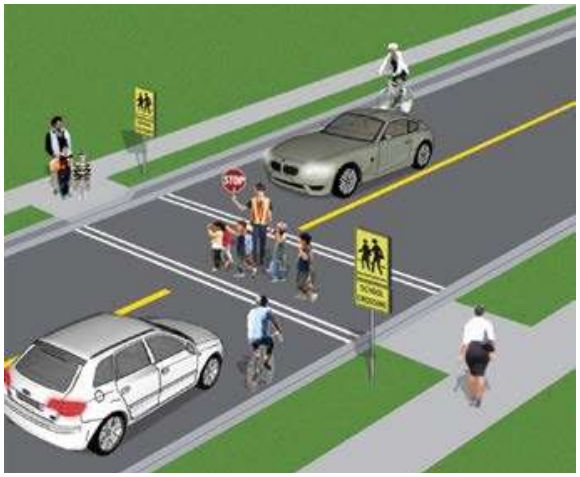
- Diagram courtesy of Janett Jiménez Santos



(3) Signalization for pedestrians and for vehicle drivers is needed especially at busy intersections. Such intersections can be controlled by traffic lights and by pedestrian signals with audible signals, and with adequate timing to cross (traffic light green time). Consider increasing the green time at intersections used by many persons with disabilities.

If there is no traffic light, crossing guards can use temporary hand-held signals to stop traffic while children are crossing, as in the image at right. The crossing guards need to be trained to do this, in coordination with local traffic police.

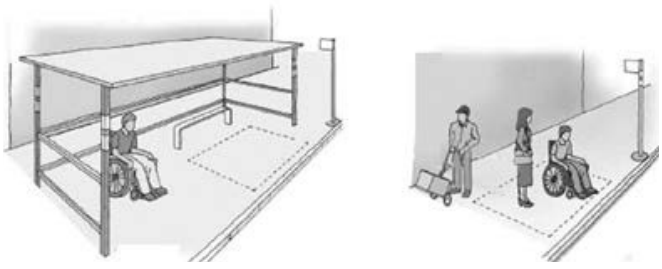
- Image from Ontario, Canada, Ministry of Transportation, <www.mto.gov.on.ca>



(4) Bus stops should include a pedestrian path leading to the stop, accessible waiting and boarding areas, bus stop signage and a stop area for the bus. This can be complemented by street furniture and a shelter at busy bus stops.

If there is no formal bus stop, choose a safe location in relation to the sidewalk and to pedestrian crossing points. Include a signal indicating the bus stop.

- Image from "Enhancing the Mobility of Disabled People: Guidelines for practitioners," TRL and DFID (2004)



4.4 Recommendations to increase safety for children walking to school or to school bus stops

- Encourage safe walking programs for students, with the initiative and involvement of parents or parent associations, teachers, school staff, local authorities, and local community groups.

- Advocate for street and road improvements at or near schools. Make the needs of children walking to school known to departments or ministries in charge of education, public works, transportation, mobility, planning, or public health. Contact government authorities, including those responsible for construction or maintenance of pedestrian infrastructure.

- Get involved in preparation of an access action plan for pedestrian infrastructure that defines the travel chain to be used by pedestrians, with actions to be taken in the short, medium and long term. While construction of improvements is being carried out, make administrative and/or operational changes such as safe detours for those walking along the route during construction. Changes can be implemented gradually to include access to persons who are semi-ambulatory, blind persons, and wheelchair users. It is recommended to have a design guideline for streets, sidewalks, and intersections to provide criteria for future building work.

4.5 To learn more

Tools for assessing the walkability environment:

- The Walkability City Tool analyzes the street as an element and also as part of a larger network. Go to <http://walk21vienna.com/?dg_voting_submission=walkability-city-tool>

- For the Walkability Assessment Tool, go to <www.ipa.udel.edu/healthyDEtoolkit/docs/WalkabilityAssessmentTool.pdf>

- Walkability audits are discussed at <http://www.cdc.gov/nccdphp/dnpao/hwi/toolkits/walkability/audit_tool.htm>

- A walkability checklist is found at <http://www.saferoutesinfo.org/sites/default/files/walkabilitychecklist.pdf>

Tools for planning safe routes to school:

- Safe Routes to School (SRTS) program

  The USA has a Safe Routes to School program to improve safety, walking, and bicycling by children. On a broader level, such programs can enhance children's health and well-being, ease traffic congestion near the school, improve air quality, and improve community members' overall quality of life.
  Go to <http://guide.saferoutesinfo.org/steps/index.cfm>
  Go to <http://www.nhtsa.gov/people/injury/pedbimot/bike/Safe-Routes-2002/>
  This is the Safe Routes to School (SRTS) Guide website
  This website gives information about how to start a Safe Routes to School program. This is an opportunity to make walking and bicycling to school safer for children.

- Pedestrian safety

  Go to <https://www.nhtsa.gov/road-safety/pedestrian-safety> at the USA's National Highway Traffic Safety Administration (NHTSA)
  This website has materials about pedestrian safety that are geared toward children, as well as general pedestrian safety information.

- For tools for street design

  (1) Go to <nacto.org/publication/urban-street-design-guide/> Urban Street Design Guide, 2013, National Association of City Transportation Officials
  (2) Gobierno de la Ciudad de México (2016). Manual de Normas Técnicas de Accesibilidad, SEDUVI, Ciudad de México, México, <http://www.indepedi.cdmx.gob.mx/manual_accesibilidad.html>.

Case study: BOLIVIA

The need for school transport

by Richard Schultze

The situation in Santa Cruz

The Walter Henry Educational Complex (Instituto Americano Metodista Walter Henry) in Santa Cruz, Bolivia, is a Methodist pre-K through high school that has approximately 250 students, predominately from lower income neighborhoods within several kilometers of the school.



A parent participates in a conference at the Walter Henry School.
- Photo by Richard Schultze

Of the 250 students at the school, fewer than ten have some form of disability, including limited vision, limited mobility, Down syndrome, and autism. There are no children using wheelchairs, nor are there any special provisions for the students at the school. Each year there are approximately 30 students in the infant and small child day care program. While any disabilities may be noticed, formal diagnoses have not been conducted nor have formal individual education programs been developed. It appears that most children with disabilities do not move to the regular school after "graduation" from day care but instead stay home. In the past, teachers and administrators had not received formal training concerning disabilities nor concerning how students with disabilities could be accommodated in the school.

In order to address this situation, a Methodist mission effort from the United States, called Embracing Disabilities in Bolivia, initiated visits in 2013 with the objective of conducting an annual conference on disabilities to better inform teachers, administrators and families about how to accommodate students with disabilities in the schools. The mission teams have consisted of special education teachers, transport specialists, parents of children with disabilities, persons with disabilities, medical personnel, psychologists, personal care attendants, and others.

Bolivia does have national laws that mandate access to jobs and access to public schools and buildings and to employment for all of its citizens. The implementation of such laws is problematic and what limited funding there is for school accessibility does not include private schools such as the Walter Henry Educational Complex.

In the Bolivian state (called a "department") of Santa Cruz, there are approximately 2,700,000 people. Participants in the series of annual conferences have identified 25 social service agencies that provide some services for disabled children and adults within Santa Cruz. The agencies are a mix of non-profit organizations – often with funding from European countries – and some government organizations. Discussions with some of these agencies and a government contact revealed that almost none have transportation available for their clients, much less any accessible transportation. The exception was one agency with a small vehicle that is used to transport one child who uses a wheelchair by removing him from the wheelchair and tying him into the seat so he does not fall.

These agencies appear to provide effective services other than transportation, but they have long waiting lists. Families with higher incomes may have better access than do poorer parents

who do not understand how to use the services nor to advocate for their children's inclusion, much less to pay agency fees or transportation costs to and from the agency nor to obtain a professional assessment of the child's disabilities. The families of most children with disabilities are quite poor, in a country which is the second-poorest in the Western hemisphere. Families tend to lack education and to be headed by a single mother, often with several children and often belonging to indigenous groups.

Fortunately, the local teacher training college now offers a certificate program for teachers in regular classrooms on how to better accommodate and include disabled children into their classrooms.

While the Walter Henry Educational Complex currently does not have special provisions for accommodating students with disabilities, they do have a vision to become an inclusive school where learners with and without disabilities may study together. Many factors need to come together simultaneously for this and similar schools to better include disabled students: teacher training, infrastructure improvements, special education materials, parent attitudes, and transportation.

Transportation to school: A missing link

Currently there is no accessible transportation anywhere in Santa Cruz. The public transit system consists of "micro" buses that can seat 15 passengers. These vehicles have high steps, no accommodations for wheelchairs, no special fares for the disabled, and no accessible service information. They are crowded up to twice the seated capacity, all day long. The situation is unsafe for both adults and for children with disabilities due to crowding and groping on board, lack of designated seating for those with disabilities, and lack of safe or continuous sidewalks to get to and from a bus stop. Drivers lack disability awareness training and fail to be courteous or sensitive to passengers with disabilities. Often, transit buses pass up persons with disabilities and in fact buses merely slow down for boarding and alighting. Appropriate service for passengers with disabilities is seen as resulting in fewer total passengers and lower revenues for the drivers and the transport company. Similar concerns occur with the thousands of licensed and unlicensed taxis in Santa Cruz. None are accessible and it would be naïve to expect that a passenger with a disability would be safe and secure in such vehicles. Nor have any school bus fleets been identified in Santa Cruz.



"Micros" in Santa Cruz, Bolivia
- Photo by Richard Schultze

There is one large government school that focuses on disabled children and is located in downtown Santa Cruz. Parents must obtain their own transportation for their children with disabilities. Most children walk, either accompanied by a family member or alone. Others use public transit or taxis, usually with parents accompanying them, or are transported in a family vehicle. No transportation is provided by the school.

During a recent Embracing Disabilities in Bolivia conference, a focus group was conducted with some parents of children with special needs. Most of these parents did not have children in the school but were interested in their future enrollment. The focus group, led by a mission team person who is a professional in accessible passenger transport in the United States, discussed what the parents expected from the transport of their disabled children to and from school.

The focus group suggestions were pragmatic and cost-effective, albeit without serious expectations that their desires for transportation to/from school would readily materialize. They suggested a mix of the following options:

- A child with a disability could walk alone, with parents, or in a group with other children.

- A ride could be arranged with a family or teacher with a car. However, this would be very rare,

since most families or teachers do not own cars and must use public transit or taxis.

- Several families could come together to share the costs of a regular taxi with a regular (and approved) driver. One parent from La Paz stated that she had done that when living there and that it had worked well.

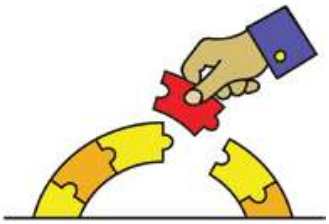
- Parents could accompany their child on a taxi or a transit vehicle. However, they feared that this would be difficult due to transport costs and the time that it would take the parent, both in terms of being able to hold a job and having to leave their younger children at home during the transport or bring them along in the vehicle.

- Interest was expressed in the school leasing or buying a taxi or small vehicle to transport several children, both with and without disabilities, in a well-controlled environment. However, they acknowledged that they did not think funding was available either to purchase or operate the vehicle.

The Walter Henry Educational Complex faces serious long-term financial problems. There is no governmental funding for private schools. They rely on student fees and contributions from Methodist donors in the United States. At present, there is no sense that they will be able to afford to purchase, lease, or operate a vehicle. For the time being, transport will have to be the responsibility of the families.

Also see the case study from Kenya for another school operated by a community of faith, as well as the case studies from Nigeria and Kenya concerning other private schools.

SECTION 5. SCHOOL-OPERATED VEHICLES



Purpose of this section: *To discuss challenges and opportunities facing schools that are able to operate their own school transportation*

5.1 Introduction

Issues of walkability are discussed in the two preceding sections, especially as they effect children with disabilities. Walking to school and riding in a school bus or van are the major ways that school children get to school in much of the world. In all countries, children with disabilities often cannot walk the same distance as other children. Clearly, in low-income countries, the provision and operation of vehicles to transport children with disabilities belongs on the development agenda for everyone who seeks to promote inclusive education for all children. Safe environments for walking, and large school-bus fleets, have been developed in many high-income countries over periods of several decades. (See box below)

In the USA…

Wealthy countries often depend on school buses operated by or on behalf of schools and school districts. The United States, over many years, has developed a primary means of school transport: the specially designed school bus, painted yellow for safety. The service is typically provided without charge to families and must be free of charge for students with disabilities. Every school day, 475,000 school buses transport 25 million children to and from schools and school activities. School buses are purchased or leased by some school districts, while other school districts contract with other agencies to perform this function. Approximately 40% of school districts in the United States use such contractors. The cost is high: an average of $854 per student transported per year.

A survey of more than 400 school bus fleets found that on average 15% of the students carried have disabilities. Of those with disabilities, 4% use wheelchairs. A portion of special-needs students are 'mainstreamed' with other students using a school bus. Aides (attendants) were used by most fleets on at least some of their buses, and 38% of the fleets used aides on all of their special needs buses. – Data from School Bus Fleet, February 2016, pp. 36-39

Section 6 discusses public transportation as an option when it is available for children with disabilities, especially when younger students with disabilities can be accompanied by an adult during travel. However, children with disabilities may have lower energy levels and may have more intellectual, emotional and physical concerns than other students. In some cases, children with disabilities are more likely to be victims of abuse and harassment than other students. Vision, hearing, and speaking disabilities may limit the ability of some students to use public transport or follow directions. Some students with disabilities have behavior issues and are more likely to initiate socially unacceptable or surprising behaviors that may escalate and draw in other children. These reasons favor school-operated transportation. Drivers employed by schools learn how to handle difficult situations including the storage of mobility aids, transport of medications, and handling hygiene.

A focus on school-operated transport is often driven by parents who fear for the safety of their children on public transport unless they are accompanied by an adult. The parents of students with disabilities may not permit unsafe transportation for their children, even if it means that the children will not go to school.

5.2 School-operated vehicles in Sub-Saharan Africa

Fifty-three schools in Sub-Saharan Africa responded to a question about whether they provide transportation in school vehicles for their students with disabilities. Only one third (18 schools) indicated they provided some transportation and the remainder (35 schools) indicated they did ***not*** provide such transportation. Eleven of the schools provided specific information about the number and types of vehicles in their fleets, reporting 57 vehicles (48 buses, 7 vans, and 2 cars), of which ***44 of the vehicles were from six government schools in South Africa and the remaining 13 reported vehicles were from five private schools in Nigeria, Kenya, and Uganda***. These results may suggest that there is little vehicular transportation operated by Sub-Saharan schools for children with disabilities, especially outside of South Africa.[1] See the chart below:

Vehicles *reported*	Government schools	# vehicles	Private schools	# vehicles
South Africa	6	44 vehicles	0	0
Other countries	0	0	5	13 vehicles

The reports from schools operating vehicles in Sub-Saharan Africa illustrate the challenges they face. Fifteen schools reported that their "best vehicle" (typically most recent) was donated and only six reported this vehicle was purchased. The average age of the vehicle was reported as 7.8 years old. (Totals do not add due to variations in number of responses to different questions.)

Other questions explored funding sources and training for vehicle personnel as depicted below.

SOURCES OF FUNDING (some with multiple sources)	school budget	student tuition	govt. agencies	private donation	other	
for vehicle maintenance	11 schools	2 schools	2 schools	4 schools	1 school: religious body	
for fuel	11 schools	3 schools	2 schools	4 schools	1 school: paid by parents	1 school hired an outside provider who paid for fuel as part of contract
for paying drivers	8 schools	2 schools	4 schools	2 schools	1 school: drivers are volunteers	1 school: drivers paid by contracted provider

1 The situation for two groups of non-African schools is not comparable in most respects to this group of Sub-Saharan African schools. Five reporting schools from other developing countries (India, Thailand, Micronesia) provided an inadequate sample size. Nine schools from Hong Kong provided a better sample from a highly developed urban area as discussed in the box below.

What types of special training do the drivers receive?	none	disability awareness	operating special equipment	controlling individual and group behavior
	8 schools	6 schools	0 schools	5 schools

Is there an attendant on the vehicles to assist with individual or group behavior or bullying problems?	Yes: 13 schools	No: 5 schools

What other training is needed?	First Aid	Driving skills	Other comments (one school each unless shown)
	7 schools	2 schools	"mobility training," "evacuations," "how to communicate with people with disabilities," "disability awareness" (2 schools), "special needs of learners," "management of parents," and "controlling behavior"

Accessibility features: Thirteen schools reported some use of seat belts, one school of ramps, three schools reported use of car seats for children (or booster seats), no school reported tie-downs to keep children in wheelchairs, one school reported securements to keep wheelchairs from rolling, and one school reported use of contrasting colors on handrails to assist those with visual impairments. *With the exception of seat belts, very few accessibility features were reported in use.*

Other observations:

- *Especially outside of South Africa, governments at all levels appear to have almost no role in assisting with vehicle purchase or operating costs, or payment of drivers or attendants.*

- *There appears to be an awareness of the need for more training of transport personnel.* Our case studies and other reports from Nigeria, Pakistan, and the Dominican Republic indicate that drivers learn from experience "on the job."

5.3 Donated vehicles, NGOs, and communities of faith

When we asked the open-ended question, "Do you have any other ideas about how to promote better transportation to school for students with disabilities?," fully half of the replies from 40 African schools mentioned the need for provision of school buses.

In many countries, schools rely on donors to procure their vehicles. This is especially true of private schools, including schools founded or operated by NGOs or by communities of faith.

The "donation model" for obtaining vehicles may have its roots in the fact that special education schools in many developing countries, especially in Africa and parts of Asia and Latin America, were often founded by communities of faith. NGOs have supplemented these efforts. Both NGOs and communities of faith have expanded their work in areas where government schools have not met the need. And both the religious and NGO models have historically depended mainly on donations, typically from individuals or foundations in North America and Europe.

Two concerns with this model are its impact on long-range planning (will the donations continue in order to replace any existing vehicle[s]?), and the fact that some governments have become accustomed to special education transportation – such as it is – being ***handled by others*** as a charitable function. The vagaries of funding in turn can result in a lack of preventive maintenance and an inability to retire older vehicles as operating costs become excessive. As a vehicle becomes less reliable, the ability to meet transport needs decreases, as noted in the case studies from Pakistan (among 15 schools in Sindh Province) and Mexico (the study from CAM-7 in Valle de Bravo), and see also the example from Cameroon at the end of this section. The proper disposal of vehicles when "junked" is a related concern.

Examples of donated vehicles are found in the case studies as well as the MSU-AEI survey. A political figure donated a needed vehicle in the case study from the Dominican Republic, business donations assisted CAM-7 in Mexico, and a wealthy individual donated vehicles for use by a private school in Karachi, Pakistan. Vans are donated to public schools for special education purposes by the Jockey Club in Hong Kong.

In Hong Kong…

The MSU-AEI survey provided sample data from this wealthy city, with 9 special education schools reporting 1,011 students, of whom 63% were boys. Transport-to-school data was provided for 816 of these students:

- 71% used bus or van transport provided by the school
- 8% used public transportation
- 9% walked or were carried by an adult
- none rode a bicycle
- 12% used "other transport"

Eight of the 9 schools were government-sponsored day schools, providing daily transportation to their students. Four schools, reporting in more detail, stated that their vehicles were donated new. Seven of the schools provided computers to their students for on-line education to supplement what they learned at school.

- We thank Rex Luk for disseminating this survey and providing materials from Hong Kong.

Sometimes the use of a vehicle is donated, but not the vehicle itself. This may not always work well. One school in Africa noted that the "available vehicle (is) not properly designed for children with disabilities. The vehicle is owned by a caring political office holder. (The) school has no school bus of its own. The school bus is at the control of the owner, many times disappointment sets in."

5.4 Where does school transportation belong on the development agenda?

The global development community should consider greater coordination with other international donor agencies when it comes to vehicle donations. Such agencies include foundations and individuals who often focus on meeting the need of specific schools for one or more vehicles, as well as international communities of faith who often were the founders of special education schools or currently operate such schools. It is important to engage such agencies which have been grappling with inclusive education and special education issues over many decades. International foundations, NGOs, and communities of faith should be encouraged to focus on sustainable giving which addresses replacement schedules for vehicles and preventive maintenance during the useful life of vehicles that are donated. In some cases, such agencies could consider the potential advantages of leasing fleets of vehicles to serve larger school systems. As NGOs and faith communities continue to support improved transportation for children with special needs, this in turn opens doors for both research and for efforts to improve school transportation by such agencies. For example, taxes on vehicles could be structured to provide

incentives to donate safer, more accessible vehicles, and to assure that such vehicles are non-polluting and meet clean air standards.

The indifference of governments, in some developing regions, to the crisis in vehicular transport for children with disabilities may be augmented by ***the lack of detailed discussion of such transport within the development community.*** *Public transport and education specialists may fail to discuss school transport issues because neither considers school transport to be their responsibility. School transportation for children with disabilities thus becomes an "orphan" at risk of being neglected by everyone.* To provide but one comparison, even a small portion of the resources rightly allocated to mass transit systems could lead to significant improvements in the "last mile connectivity" that determines whether or not children with special needs will be able to attend school. See Section 7 for additional linkages.

5.5 The use of aides or attendants on vehicles

Another critical issue is the assumption in many countries that if a child with a disability needs an attendant, then that task must be fulfilled by a parent (usually the mother) or some other adult provided by the parent. This may account for a considerable portion of those children who are unable to attend school even when transportation is available. This situation is highlighted by colleagues in Pakistan, Mexico, and Nigeria, where it is assumed that an adult (usually the mother) accompanies their child with a disability to and from school.

Several families could pool resources and have an attendant accompany several children with disabilities. The disadvantage of this approach is the time required of the attendant, which means that a parent is not available for gainful employment during that time. Cost of a paid attendant may be prohibitive, unless the school helps out. Also, a single mother accompanying her child with a disability on a school bus or public transportation would have to bring any other children with her, otherwise provide for care for them, or face the problem of leaving them at home.

Nearby families could band together and have several of the students with disabilities ride together as a group, possibly with siblings also going along and watching out for them. This option could be practical if the group were accompanied by an adult.

See also Section 13.6, "Attendant training"

5.6 The need for vehicles at boarding schools

The need for vehicles is not limited to transportation to and from day schools. Boarding schools are often located far from the parents who send their children. They have a special need to expose their students to field trips and other experiences outside of the school itself. The MSU-AEI survey suggests that boarding schools in Sub-Saharan Africa provide a major portion of current school resources for children with disabilities. As one observer of the situation in South Africa notes, "In reality children with serious disabilities are transported by buses owned by special (day) schools, or they board."[2]

2 From a message from Amanda Gibberd, Director of Universal Design in Public Transport, Public Transport Network Development, South Africa, received April 14, 2015.

The head of a "live-in" school for children with disabilities in Lesotho comments in the case study, "It is very difficult for the children to travel to school due to lack of transport. Some would come a month or two after the school already opened, due to lack of transport and parents not able to pay for their transportation from far places… Those who are needy… sometimes fail to come to school when they don't have funds to cover transport within their families."

Another example comes from the head of a home for children with disabilities in Cameroon who writes, "Presently we (only) hire public transport to convey our… students to distant schools/colleges and hospitals, given that the Toyota MiniBus (we received as a donation in) 1995 has depreciated and is out of use… (We) need means of transportation, especially (to) conduct sick children from our (agency) at night during emergency cases. We spend much on hiring public transport when accessing our disabled orphans to in-country excursions and Divisional Sports Activities/Events."[3] A similar situation is noted in the discussion of a donated "three wheeler" used to meet medical and other emergencies for girls (without disabilities) boarding at a secondary school in Tanzania.

3 From a message from the Rev. Tanne Zadock Mugri of HOTPEC Orphanage Home in Cameroon, dated February 5, 2015.

Case study: BRAZIL

Curitiba's accessible school bus fleet

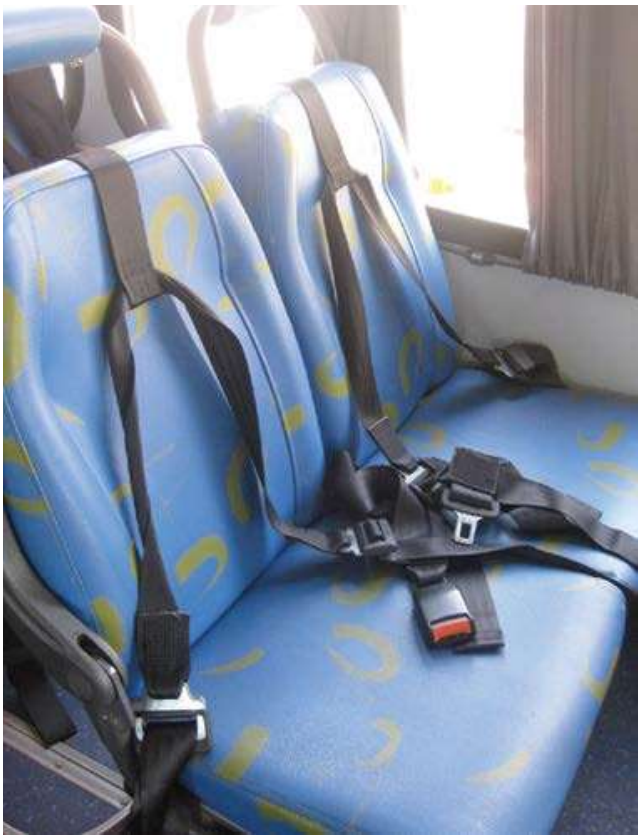
Introduction

Curitiba, Brazil, has a range of accessible public transportation to serve all its citizens, including those with disabilities. Bus rapid transit – typically with a spectrum of access features which make it ideal for seniors and passengers with disabilities – was pioneered in Curitiba many years ago and has since been inaugurated in cities around the world. Thus it is not surprising that Curitiba has also pioneered an effective means of getting children with disabilities to school. The city's public policy creating transportation for such children goes back to the 1980s, when city planners responded to requests from parents unable to afford transport for their children with special needs. The system was originally operated by the same bus companies providing regular public transportation. It was subsidized by the municipal transport system except for the costs of attendants on the buses, which were paid by rehabilitation and charitable agencies.



The bus fleet and its operation

Over the years, the original transportation system has expanded. Curitiba now has a unique school transport system for children and youth with mobility and intellectual disabilities. The services are operated by SITES, a Portuguese-language acronym for Integrated Special Education Transport System. SITES currently has 60 buses (photo) operated by nine contracted bus companies. The SITES vehicles average nearly 8,200 km travel per day. The buses make daily runs on 55 routes that carry 2,500 students to and from 35 different special education schools. Most of the schools are private schools, while a few are public. The service is free to parents and caregivers.



The high-floor buses are fully accessible with wheelchair lifts, two securement areas for occupants using wheelchairs, and double seats for 32 seated students, each with a five-point seat belt (photo). Two attendants accompany students on the buses and assist the passengers to board and

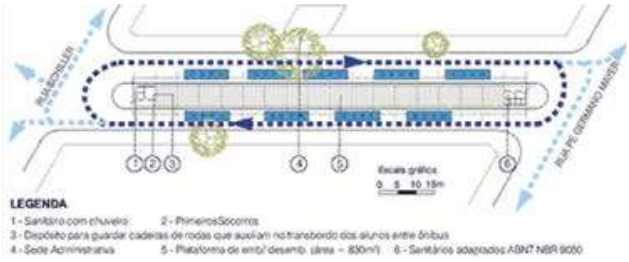
alight. Drivers and attendants are trained to competency and retrained on an annual basis.

Curitiba's Municipal Department of Education (Secretaria Municipal de Educação) funds the entire service, including all operating costs and the salaries of bus drivers and attendants. The service is managed by URBS – Urbanização Curitiba S.A. – in partnership with the Department of Education. URBS operates the system and also interfaces between parents, schools, and the special transport system. When students with disabilities are enrolled, parents fill out an application form with information about the students and their responsibilities and then receive a document with the standards that must be met by all those who benefit from the service.

The transfer center



Of the 55 bus routes, 34 provide direct service between students' homes and their schools. These routes serve 1,391 students. The other 21 routes, serving 1,126 students, connect with a terminal (photo above), where students transfer between buses which dock around the perimeter of the terminal (diagram at right). The students then proceed to their destination schools which typically are specialized for one or another type of disability (e.g. blind and low-vision, or deaf and hard of hearing). Transfer time is programmed to not exceed 15 minutes. The transfer area is protected by railings and is fully monitored. Students are guided between buses by bus and terminal personnel. The terminal has private bathrooms for boys and girls, including a toilet with a shower and a first aid room. The transfer saves time and reduces operating costs by (1) picking up children clustered in a single neighborhood while (2) being able to deliver the children to and from a specific school.



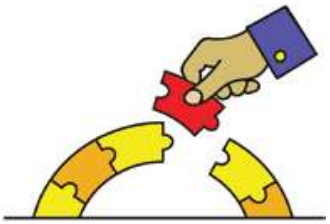
Concluding comments

This case study is about Curitiba's exemplary and innovative transportation. It does not comment on the complexities of special education in a huge country such as Brazil, nor the differences between wealthier and poorer cities nor between urban and rural areas in Brazil. See Section 8.5, on sources of funding, for a program operated by Brazil's Ministry of Education to procure buses for schools in rural areas.

The reader is also referred to our case study titled "São Paulo's Atende and Ligado," found in our guide, *Paratransit for mobility-impaired persons in developing regions: Starting up and scaling up* (2012). The case study is found on pages 63-64 at <http://www.globalride-sf.org/paratransit/Guide.pdf>.

This case study is edited by Tom Rickert, based on a description provided by Silvia Mara dos Santos Ramos, Coordinadora of the Unidade de Relações Institucionais of URBS, City of Curitiba.
Go to <http://www.urbs.curitiba.pr.gov.br/acessibilidade/sites> for a Portuguese-language description of the SITES program. Photos of bus and terminal are by Juan Carlos Pineda Gomez of Medellín, Colombia. Other photos and graphics are used with permission by CSMC-Curitiba and SITES.

SECTION 6. THE POTENTIAL OF PUBLIC TRANSPORTATION



Purpose of this section: *To discuss the current use of public transportation by school children with special needs and the potential of public transport modes to play an expanding role to assist children with disabilities to travel to and from school*

6.1 Introduction

In many countries students *without* disabilities frequently use public transportation as they become older or when they are accompanied by older friends or siblings. This is true in the United Kingdom, especially in London. In the USA, the use of standard public transit buses by school children is increasingly common in urban areas such as New York City and San Francisco. For example, New York City provides yellow school bus service to select students based on grade level and their distance from the school, but relies on the public New York City Transit bus system to transport students in grades 7-12. Free or half-price transit passes are provided by the school system for this purpose.

However, as noted in the previous section, in all countries the use of public transportation presents challenges for younger children with disabilities if they were to travel alone without an adult to accompany them. This remains true for older children with disabilities in countries with less regulated and more chaotic public transport. In many countries, bus drivers do not have the motivation nor the training to provide special attention to children with disabilities. In some regions, drivers may pass by riders with disabilities in order to save time. The vehicles are often crowded and make sudden starts and stops. Passengers must walk to and from the bus stops, wait with others, and negotiate any required transfers and fare payments. These concerns vary from country to country. Where public transport is more organized and less chaotic, opportunities for travel to school on public transport can be carefully considered.

6.2 Input from the MSU-AEI survey, reports, and interviews

When accompanied by an adult, this situation changes. Our case studies and other input from Pakistan, Mexico, the Dominican Republic, India, and Nigeria all point to some use of public transportation modes by individuals or groups of children with disabilities when accompanied by an adult. For example, public transportation is an important mode of travel for parents who accompany their children to schools in Karachi, Pakistan, as discussed in Section 2. In the State of Hidalgo, Mexico, many parents appear to accompany their children to and from school on regular buses in general use.

However, our survey of African schools indicates that public transportation is simply not available in many or most locales, at least in a form usable by students with special needs.

A high level of response was received from this question -

Are city/town/village transportation services available for students with disabilities to get to your school?	Yes: 13 respondents No: 38 respondents

Fewer schools responded to followup questions.

Which of the following types of city/town/village transportation are easily available to students with disabilities?	Bus	3-wheelers	Taxis	Motorbike
# replies	7	5	8	1

Are funds available to help students with disabilities pay for their city/town/village transportation costs?	Yes: 2 responses No: 12 responses

Respondents were asked if it would be practical to adjust their morning school schedule (to begin after peak transit use) to better use public transportation providers.	Yes: 1 response No or "does not apply:" 11 respondents

6.3 Opportunities and challenges to the use of public transportation

Public transportation may be available to students with disabilities in the form of taxis, microbuses, full-size buses, bus rapid transit, subways, etc. Increasingly, BRT lines and other transport using large vehicles may be accessible to passengers using wheelchairs by providing level boarding, lifts, or ramps along with wheelchair tie downs and special seat belts. There is also a positive trend among transit systems in some regions to increase audible and text information for people with vision or hearing concerns, especially in newly constructed BRT systems as well as travel by rail. Too, as mobile phones become ever more common, some older children with disabilities may benefit from "virtual escorting" by enabling a child to remain in contact with a responsible adult.

The most important need is to have a responsible person accompany the child with a disability during the transport process from home to school and back. The adult attendant can ensure that the student can get to the transit vehicle, help if needed with boarding and paying the fare, communicate with the driver, find a seat for the disabled student if needed, provide a level of protection for the student against any abuse by other passengers, help the student exit the bus, and then accompany the student to the school. The attendant could be a family member (adult or responsible teen), family friend, or a paid attendant. Ideally, as the student grows older, he or she will become increasingly familiar with the use of public transportation. This can lead to a more independent life after the student completes his or her schooling and, hopefully, enters into employment.

Disability advocacy groups and others can work to help educate public transit providers in courtesy

To learn more about accessible public transport

For information on access to public transport modes, go to <http://go.worldbank.org/MQUMJCL1W1> at the World Bank. This is the location of information on driver training to improve service to persons with disabilities, found in the "Transit Access Training Toolkit," compiled by Tom Rickert of AEI. Also available at this site are "Bus Rapid Transit Accessibility Guidelines" and "Technical and operational challenges to inclusive Bus Rapid Transit," also compiled by Tom Rickert.

For more information on accessible services using small vehicles, go to AEI's guide, "Paratransit for mobility-impaired persons in developing regions: Starting up and scaling up," available at AEI's website at <www.globalride-sf.org/paratransit/Guide.pdf>.

and sensitivity toward students with disabilities. This is an important task, requiring consistent long-term motivation of the drivers along with public education.

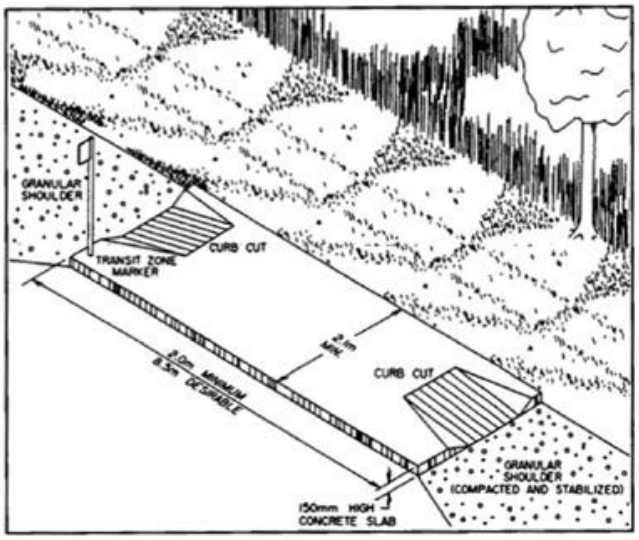
Go to Section 8 on funding sources for a discussion of the use of government subsidies which, in some cases, have reduced or eliminated public transit fares paid by parents for their children with disabilities. Our case study from Costa Rica illustrates this type of subsidy, while the case studies from Japan and India illustrate subsidies which in some cases could also be used to help pay an attendant to accompany a child on a bus.

"Fixed route" public transportation typically makes us think of bus, mini-bus, or rail lines which do not deviate from their route. In the short term, even modest changes in vehicles used for public transportation can improve their accessibility. Installing additional hand holds and railings, with high-contrast colors, is often easily and inexpensively done. Readers in developed countries may think that a truck body with bench seats, reached be steep steps, is by definition inaccessible. While such vehicles are less safe for all passengers, and inaccessible to many persons with mobility problems, modest changes to the railings and steps up to the truck body can make a big difference for many persons with disabilities (photo top right). When it comes to low-income rural areas in poor countries, often miles from the nearest paved road, access must be measured by incremental improvements and by working together with agencies fostering better rural transport for everyone.

In addition, governments and local communities need to consider how they can enhance travel for all school children, including those with disabilities, by making improvements in urban sidewalks and street intersections and well as rural walkways. See the sections on walkability in this guide. Attention should also be paid to provision of all-weather bus stops so that everyone, and especially children, can better use public transportation (diagram at right). The maintenance of existing accessibility improvements is also needed and is an ongoing *process*, not a one-time achievement, as pointed out by observers in Hong Kong, Rio de Janeiro, and many other cities.



This bus in Cuba is high floored for rural use, with slanted stairs and fairly adequate hand rails to provide relatively better access than in the absence of such features. A wide variety of passenger cabins modified to fit on different truck bodies are used in many countries. Though clearly not accessible to those persons with disabilities who must remain in wheelchairs during travel, in many countries people of good will tend to be more "hands on" in assisting persons with disabilities. Standards of accessibility taken for granted in some countries are less observed or ignored in others. - Photo by CGB "Kit" Mitchell



Rural bus stop diagram courtesy of Alberta Transportation and Utilities, "Design Guidelines for Pedestrian Accessibility." An even simpler curb piece could be used. On dirt roads, ongoing maintenance is needed to prevent rutting next to such bus stops.

6.4 "Paratransit" and smaller vehicles

In many locales a great deal of transportation is provided by paratransit vehicles that usually do not follow fixed routes or schedules. "Paratransit" may have different meanings in different countries, but we use the term here to refer to the use of smaller commercial vehicles that are not operated strictly on fixed routes. Rather, they may be used in door-to-door service, from centrally located stands, or along routes from which they can deviate to take a passenger to a destination. Depending on circumstances, mini-buses, vans, taxis, motorized auto-rickshaws, cycle-rickshaws, motorcycles, and some animal-drawn conveyances all may operate as paratransit vehicles. In many countries these services are more "informal" than commercial bus lines on fixed routes. They may be less regulated[1] and fares may be subject to bargaining. In many cities, and some rural areas as well, such vehicles are the main type of transportation available to a parent for school transport for a child with a disability.

One example of paratransit transport to school is found in the case study from Mexico that follows this section, where some children with disabilities arrived at CAM-7 by using shared-ride taxis (picking up five or six children on an informal route), or by using more expensive regular taxis. Accessible van and taxi services are available for persons with disabilities in many cities in Latin America and in Asia. Mexico City, for example, is moving toward a large accessible taxi fleet, and Taiwan has more than 1,200 accessible vans. They are used by those who can afford them, unless there is a public subsidy for vulnerable groups such as children with special needs.



Most paratransit systems have the potential to benefit from an app which will call a vehicle to the door of a person with a disability. One example is this auto-rickshaw app in New Delhi, India. - Photo of Pooch-O app in operation, designed by the New Delhi transport department. The original photo appeared in BBC's The Technology of Business.

To date, subsidies have not been used to fund access to "transportation network companies" (TNCs), a type of paratransit service such as Uber which connects paying passengers with drivers who provide the transportation on their own 'non-commercial' vehicles. The service is accessed via website and mobile apps. For those children with disabilities living in low-income areas, it is not clear if transport-to-school options using subsidized TNC transport could be developed, at least in urban areas. More local initiatives, discussed in the next section, appear to hold more promise as a partial solution to transport-to-school needs. TNC operations are evolving at such a fast pace that their possible subsidized use for school trips for children with special needs should be kept in mind, provided that drivers are well-trained, trustworthy, and sensitive to the needs of children with disabilities.

1 Regulations can refer to the licensing and training of drivers, requirements for inclusive design of vehicles, inspection of vehicles, enforcement of fare levels, financial reporting, etc. Totally unregulated transport tends to be unsafe, chaotic, and inaccessible to persons with disabilities. While it is widely understood that the right balance of regulation is needed for different types of transportation – not too much nor too little – we believe transportation should be regulated at a level that assures increasing accessibility and safety for all passengers, including adults and children with disabilities. This is in line with the United Nations Sustainable Development Goals and the UN Convention on the Rights of Persons with Disabilities.

A more obvious trend – *increased use of "three-wheelers"* – is found in many developing countries.[2] Three-wheelers such as motorized auto-rickshaws in India, or similar vehicles going by many others names in many countries in Asia, Africa, and Latin America, are often a much-used method of transportation for school children, including children with disabilities. In Dhaka, Bangladesh, they account for some 39% of motorized trips taken by everyone.[3] With a typical top speed of 50 km per hour, three-wheelers do not belong on high-speed roads. They also require safety belts in order to be properly used by school children, even though in some countries parents may feel that holding their children is sufficient.[4] Our case study from Pakistan discusses children with disabilities in Sindh province: "Students coming from areas where (school bus) service was not available used auto-rickshaws, (personal) tricycles, and qingqi rickshaws."

Further research is needed to improve auto-rickshaws and similar smaller vehicles. Readers may contact Amin Andani of NOWPDP in Karachi, Pakistan, for information on his research into more accessible auto-rickshaw design and personal tricycle design. We reviewed data on auto-rickshaw fares in India, Mexico, Peru, and Tanzania and found that three-wheelers typically charge 40-50% less per ride than do taxis. This is because they are cheaper to buy and maintain and because they use less fuel. This is a major difference that appears to be consistent in different countries. Different versions of auto-rickshaws open the door to less expensive transportation to school for many children with disabilities. The photo at right, courtesy of Andrés Balcázar de la Cruz, shows a passenger cabin pulled by a motorcycle, operating in Chimalhuacan near Mexico City.



One entrepreneur in Mexico estimated that he could purchase five 3-passenger vehicles (as in the photo above) for less than a quarter of the investment in a single Toyota van. Totaling up his costs of doing business, he estimated that the five smaller vehicles would net him a daily profit 25% greater than the van.[5]

A concern with three-wheelers (and even more with two-wheelers, below) is that this type of transport tends to be informal and driven by younger drivers who are inexperienced. An observer in Guatemala noted that the three-wheelers "have filled a vacuum left by buses and taxis, especially because they provide a relatively inexpensive door to door service… Some drivers are young teenagers, without a

2 The term "three-wheelers" is used to provide some clarity to the many names used in different countries for what are known as "auto-rickshaws" in India. A variant is a tractor-trailer combination where a motorcycle serves as the 'tractor,' coupled to a two-wheeled passenger cabin which serves as the 'trailer,' as shown in the photo above. In some countries these are called moto-taxis, but this usage can also refer just to motorcycles with one or more passengers behind the driver.

3 Observation by Stein Lundebye at an AEI Roundtable in Washington, DC, January 15, 2015.

4 Go to <bit.ly/16Xwr47> for a blog on CitiFix by Tom Rickert, promoting design improvements in autorickshaws to make them more usable and safer for persons with disabilities.

5 Information gathered by Janett Jiménez Santos in Mexico in early 2016.

drivers license, with little or no schooling,… and (probably in most cases) drive merely to survive."[6] A study of similar drivers in Mexico City indicated they worked 6.4 days per week, while taxi drivers averaged 10-12 hours per work day.

In spite of the challenges confronting drivers eking out a living with little orientation to passengers with disabilities, heads of school in both Pakistan and Nigeria stated that the three-wheelers are an important means of transport for children with disabilities, when accompanied by adults, to get to school. In Colombia, more formal three-wheelers, driven by women who are heads of their households, connect bus passengers with their homes in low-income barrios in the city of Montería. It is felt that women drivers increase the confidence of passengers: A fact which should be kept in mind in other countries where children use such vehicles for transport to and from school.

"Two-wheelers" – private motorcycles and commercial motorcycle-taxis in all their variants – are found in increasing numbers in most developing regions. Clearly, they tend to be unsafe, especially when operated in an unsafe manner, and their occupants are at risk of injury. While we do not recommend the use of motorcycles to take small children anywhere, the fact remains that many low- and even middle-income parents are faced with a stark choice, for example in Vietnam and in the Dominican Republic (see the case study). They either must transport their child with special needs to school and risk injury in getting there, or have the child stay at home and forego school.

Through the eyes of a child…

A small survey was carried out on behalf of this guide by Priscilla Rodriguez, a student of Dr. Gretel Silvestre of the Pontificia Universidad Católica Madre y Maestra in the Dominican Republic. She interviewed seven girls and boys with disabilities between the ages of nine and sixteen who attended a special education school in Puerto Plata, Dominican Republic. The children were asked how they travelled to school, what they enjoyed most and least about the trip, and how they would prefer to travel to school. Most of the children travelled by motorcycle-taxi, one by car, and one in a wheelchair pushed to school by a relative. Four who travelled by motorcycle taxi stated, respectively, that they least liked "getting off the motorcycle," "stopping at the red lights," the possibility of "falling down" from the motorcycle, and "walking to school if the motorcycle breaks down." As to their travel preferences, one preferred a bus, two preferred to travel by car, and one preferred the motorcycle because it could "go everywhere." (The child who travelled by car least liked "when there are a lot of people in the car," and the child using a wheelchair least liked "crossing the street.") These comments suggest that children share perceptions of unsafe travel much as do their parents who must use such transport modes to get them to school.

- Survey results received on May 27, 2016, by AEI.
Translation from Spanish by Dr. Silvestre

A similar situation exists in Liberia. A correspondent there comments that "Access to public transportation has been a serious problem across the country, especially for wheelchair users, because transport owners refuse us into their vehicles and there are no other means of transportation. . . . This is frequently compounded by frequent accidents and injuries sustained from commercial motorbikes being used as a means of transportation especially in rural areas. Others, who cannot afford paying the cost of their use [of the motorcycles] stay home most of the time, particularly children whose parents cannot afford meeting the [transportation] costs." He recommends "advocacy for the availability of accessible transport means including rickshaws, taxis and minibuses for public and door to door service."[7]

6 Observations by Marco Colindres in Guatemala, dated January 6, 2014, translated by Tom Rickert.
7 Comments by Sahr Yillia on behalf of GAATES Liberia and the Center for Inclusion and Empowerment, in an email message to AEI received June 3, 2015.

Research is needed to improve safety and accessibility of all smaller vehicles, including motorcycles and similar "two-wheelers." Limiting the speed of motorized "two-wheelers" is important to increase safety for those who use them. For example, the city of Taipei has innovated controls to bring more order to the use of such vehicles.

6.5 Can public transport play a larger role in school transport for children with special needs?

New technologies have given rise to new ways of thinking about public transportation in wealthier countries and in the tech sectors of many other countries as well. Alongside this new thinking and the entrepreneurial startups which result, there is also, in urban areas in the developing world, the rapid increase in small and informally operated vehicles driven typically by younger inexperienced drivers who eke out a living by working long hours under appalling conditions. It is a tumultuous and conflicted picture, presenting opportunities as well as challenges.

One long-range goal would be to have public transportation assume a larger role in getting children to school, as is occurring in New York City or the United Kingdom and some other wealthier cities and countries. One observer comments, "In the Netherlands [school transport] does not – or hardly – exists. In the cities children go to school by regular bus. In rural areas one will find passenger transport being done with vans instead of [big] buses, either on schedule or on demand."[8] It is felt that this system readily handles the school transport needs of the majority of children with special needs. It seems clear that high-quality and plentiful public transportation – with appropriate accessibility features, with trained and qualified drivers, in a well-enforced regulatory environment, and supported by parents with multiple transportation choices – would be a less expensive solution for transporting many children with disabilities than having a parallel school bus system.

This, however, is the opposite of the situation that – year after year – faces most children with disabilities and their parents in most of the developing world. Those who are concerned about school transport for children now living in developing regions should be aware of ideal long-term solutions while systematically addressing the actual realities that will be faced by these children throughout their school lives.[9]

8 Message from Ad van Herk, formerly with the Ministry of Transport of the Netherlands, dated August 30, 2016.

9 One exception might be the use of 'public' transport means in some rural areas. Nilusha Dhanasekara, Coordinator of the Lanka Forum on Rural Transport Development in Sri Lanka, in a message received Oct. 24, 2016, states that "In remote locations where passengers are typically few, transport planning could consider combining specialized transport services for children with disabilities with transport requirements of other residents of the area. Research on rural transport needs in Sri Lanka highlighted that many rural communities prioritized the provision of a school trip (round trip to and from school) if only limited trips could be provided to village interiors. The school trip was also used, then, by adults to travel out of the village for their various needs. Such a service would help increase the demand for accessible transport for people with disabilities while also enabling the transport service to be more cost effective for the provider."

Case study: MEXICO

"CAM 7" in Valle de Bravo, State of Mexico

by Janett Jiménez Santos

Mexico

With a population of 129 million, Mexico is the world's 10th largest country. While 6% of Mexicans have been identified as persons with disabilities,[1] there is some disagreement concerning this figure.[2]

Education and disability in Mexico

In 2013, a national Education Reform was carried out with the following objectives:

- Strengthen the public education sector
- Ensure equitable access to quality education
- Strengthen the capacity of school management
- Better regulate the teaching profession
- Promote new opportunities for professional development for teachers and principals
- Lay the groundwork for impartial, objective, and transparent evaluation of the education system.

Although education legislation moved towards the concept of inclusive education, it remains unclear how to ensure a quality education for students with disabilities.

With the Reform, the Special Education Department underwent technical and structural changes.

- Special education support services for regular schools were modified. Specialists work with regular teachers inside mainstreamed classrooms to enhance learning for students at risk. Such students include children with disabilities and students with learning difficulties, attention deficit disorder, and hyperactivity disorders. They also include indigenous peoples, migrants speaking other languages, and any others considered in a vulnerable condition.

- Centers for Multiple Assistance, known as CAMs, were designated as special needs schools exclusively for children with "severe" disabilities. The services of CAMs include early childhood education as well as elementary education at preschool, primary, and secondary levels. They serve a population aged 43 days to 18 years. In addition, there are workshops for vocational training for students from 15 to 22 years old. Each CAM is numbered, indicating a particular school for each Mexican State.

- Counseling services were also modified with the establishment of centers to provide information, advice, and training for school staff and for parents and families of students at risk, including students with disabilities.

Funding for public schools

The number of public elementary and middle schools in Mexico increased from 168,000 in 1994 to 243,000 in 2011 (INEGI, 2011). *Construction and rebuilding* is mainly funded by the federal govern-

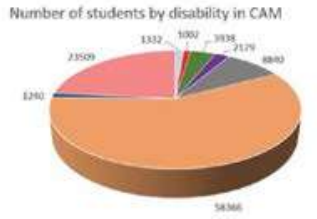
1 Encuesta Nacional de la Dinámica Demográfica, 2014 Instituto Nacional de Estadística y Geografía (INEGI).
2 For example, Encuesta Nacional sobre Discriminación en México, SEDESOL y CONAPRED.

ment through specific programs.[3] And some construction funding does come from states, which may have an impact on those states with higher poverty levels. However, schools may have a mix of federal and state funding for *operating costs*. For example, in one school there may be some staff paid by the federal government and other staff paid by the state government. In the payroll of schools, there is not a section for personnel to operate school transport for students.[4]

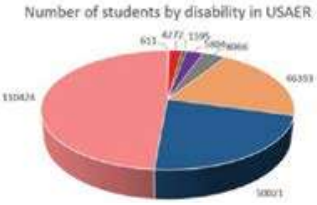
Special education teachers

Some teachers have a bachelor´s degree in special education for a certain type of disability and others have a bachelor´s for special education in general. There is an inadequate continuing education system for public school teachers in this field.

- The total number of special education teachers in Mexico increased to nearly 36,000 by 2011.



Disability	USAER (%)	CAM (%)
Blind	0.26	1.3
Heard of hearing	2.5	2.1
Outstanding skills	22	1.2
Low vision	1.8	0.9
Physical	3.5	8.8
Others	48.6	23.4
Deaf	0.7	3.9
Intellectual	20.42	58.1



The CAM itself is better funded than the transportation. Transportation is the financial orphan and this case study documents the result (INEGI). In the CAMs, there are about 15 students with disabilities per teacher plus, in theory, one assistant. However, there is a lack of assistants, so the priority is given to placing assistants in classes for early childhood education or classes which present greater challenges to the teacher.

Students with disabilities

The graphic at the left represents the number of students with disabilities at the elementary level in mainstream schools within Mexico City's public schools (lower diagram) and in special needs schools at CAM´s (upper diagram) (SEP DF, 2011). From this graphic, we can conclude that:

- There is an increase in the percentage of children with intellectual disabilities from mainstream to special needs schools.
- There is an increase in the percentage of children with physical disabilities from mainstream to special needs schools, which is not expected. This data does not show multiple disabilities.
- There is a higher percentage of children with visual and hearing disabilities in mainstream schools, however the percentage is low.
- It is expected that students with outstanding skills are in mainstream schools, however there is still a small percentage in special needs schools.
- The percentage of "others" in mainstream schools is 48% and in special needs schools is 23%, which is high. It can be assumed that for many students there is a lack of a clear diagnosis of the type of disability or other conditions.

Lack of legislation relating to transport of students with disabilities to schools

Transportation legislation relating to schools is under a School, Employers and Tourism Act. The

3 Instituto Nacional de la Infraestructura Física Educativa (INIFED, 2011).
4 Secretaría de Educación Pública, Sistema de Información y Gestión Educativa, 2014, Censo: personal funciones.

law does not require government funding for transportation to schools and schools are not responsible for transportation of their students.



Location of the special needs school CAM 7
- map from Google

CAM 7 is located in Valle de Bravo, a municipality of nearly 62,000 residents in the State of Mexico and about 150 km northwest of Mexico City (INEGI 2010). Its economy depends on an influx on weekends to houses owned by Mexico City's upper class.

Disabled students from other towns attend CAM 7 in Valle de Bravo, for example from Amanalco (28 km away), Colorines (23 km away) and Los Saucos (25 km away).

Lack of data for children with disabilities attending CAM 7

CAM 7 has 11 classrooms and 24 staff. The Ministry of Education, the CAM 7 administration, and the parents' association of CAM 7 provided figures ranging from 84 to 115 registered students. It is estimated that 60% of the students are male.

Travel modes used by students with disabilities at CAM 7

CAM 7 has two shifts per day and operates from 8 am to 5 pm five days a week from mid-August to early July. Classes are available with sign language for deaf children and Braille for those with a visual disability. Some classrooms are for severely disabled children and others for children with lesser disabilities. Students use the following travel modes to get to and from CAM 7:

Walking: Children walk with their parents, typically their mother. Walking time is between 5 minutes and multiple hours. The sidewalks in the area are generally well paved, albeit not accessible for independent use by a wheelchair user (photo).



Private vehicle: Some parents have their own cars or pick-ups (photo).



Shared-ride with private vehicles: Shared-rides may be arranged by parents. For example, a mother of a student may volunteer at the school and transport another student to the school. Both parents then share the fuel cost.

CAM van: The school has available a single 12-year old van (photo at top, next page) that was donated by a foundation. Fuel and maintenance of the

van are covered by fund-raising and fees charged parents to use the van. The cost of maintenance increases as the van grows older and there have been periods of time when the vehicle did not operate due to a need for a major repair.





The van is driven by an employee of DIF (a social service agency[5]) in Valle de Bravo since the school has no payroll for a driver. The van operates two days a week to one municipality (Colorines), and two days a week to another municipality (Los Saucos). This limits the school days available for disabled children in these two service areas. *Only 40% of potential school days are served for many of the children, who cannot attend school the remainder of the time because of transportation issues*. Students with disabilities are not allowed to travel on their own. They need to travel with an adult – normally the mother – since the driver is not trained to assist children with disabilities, nor can the driver be allowed to take this responsibility due to being a DIF employee.

DIF mini-bus (photo at bottom): This vehicle provides transportation to and from CAM 7 four days per week for children with disabilities living in the municipality of Amanalco. The passengers include 3-4 children who are able to fold their wheelchairs. There are no wheelchair securements. The minibus belongs to Amanalco´s DIF and the driver is an employee of Amanalco´s DIF. Since the minibus is for DIF´s medical purposes, DIF cannot take legal responsibility if something happens during travel. So each disabled student has to travel with an adult, normally a member of the family. Even though there is no cost for parents to use the minibus, some parents choose not to use the service every day since it consumes their time and they need to work.

Cenaculo van: A group of ten students with disabilities from a shelter for abandoned children attend CAM 7. They are transported in a van owned by the shelter with a driver from the shelter.

Motorcycle: Some students arrive with a parent, normally their father, by motorcycle. From early childhood they are taught to travel secured to the back of their parent. (See also the case studies from the Dominican Republic and Nigeria regarding use of motorcycles.)

Shared-ride taxis: Local taxis develop ad hoc "routes" to pick up five or six children, thus reducing the fares paid by the parents. This is an important mode for transport to CAM 7.

Regular taxis: The only public transportation available in Valle de Bravo is regular taxis. Some parents use them, although such taxis are the most expensive mode of transport.

5 DIF: Desarrollo Integral de la Familia is a Mexican government-supported social service agency that operates at national, state and municipal levels.

Fund-raising for transport

Transport committee: A transport committee was formed in April 2015 by a group of parents. The committee carries out fund-raising for maintenance and for fuel for the CAM van.

Foundation: A free-standing foundation, with a Board of Directors and honorary members, is located at a real estate agency in Valle de Bravo. This foundation donated the CAM van and raised money for its insurance, maintenance and fuel from business people and the private sector. Some donations are given in the form of coupons for fuel. In Mexico there is a wide use of fuel coupons for employees in some firms. Gifts to the foundation are deductible from taxable income. However, the foundation's fund-raising role has temporarily been diminished due to bureaucratic requirements.

Golf tournament: A golf club in Valle de Bravo has carried out benefit golf tournaments to provide funds toward a newer van for the municipality in order to transport children with disabilities. However, funds are not yet sufficient to buy this vehicle.

Issues identified which limit attendance at CAM 7

Low income: Most of the mothers of the students are single parents. Often the birth of a disabled child triggers abandonment by the father, leaving the mother alone with the child. Eighty percent of the children at CAM 7 have no father at home and the mother has the economic burden. So either she works or looks after her child with a disability. CAM 7 promotes parent involvement at the school for those mothers who can volunteer.

Lack of teacher training: Some children with disabilities started out in a mainstream school and then switched to CAM 7 for several reasons, such as bullying by other children. Mainstream teachers have recommended moving a child to CAM 7 for this or other reasons. This could be due to a lack of teacher training or to a lack of assistants to handle children with behavior issues. This is true even though there are several student interns from nearby universities who are studying relevant subjects and work short-term in local schools.

Transport cost: The CAM van travels only on the main road during its two service days to Los Saucos. Some roads are too rough for the old CAM 7 van to reach the houses and the trips would then take too long to pick up other children. Some parents are in a bind as it is too far for them to carry their children to the main road and the cost of travel to Valle de Bravo by shared taxi is high. Frequently, parents have to pay for more than one shared taxi to reach CAM 7 from home. Transport costs average 100 Mexican pesos (US$5.40) for a round trip per person.

Time consuming: In order to use the CAM van, a parent or another adult must accompany their child all the way to the school in the vehicle because of DIF legal requirements mentioned above. There is no attendant, only the DIF driver. Single parents need to work. They cannot afford to spend up to two hours making trips to and from CAM 7 five days a week.

Lunch: DIF can provide daily lunch for students. There seems to be a relation between provision of lunch and student attendance. Lunch was stopped for a while when there was a change of government, resulting in a drop in attendance.

Lack of information: Some parents of children with disabilities in the region are not aware that CAM 7 exists. They may live in isolated areas. Also, some parents do not know if their child with disabilities should go to a rehabilitation center or to CAM 7 or to a mainstream school. For many children there is lack of a complete diagnosis of the nature of their disability.

Conclusions

- DIF and the private sector are important actors in the world of special education.

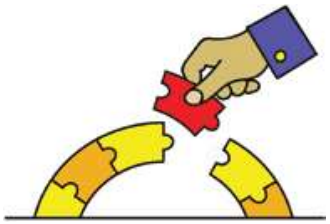
- A change of government affected the continuity of transport services provided by DIF.
- Children may move between a special needs school and a mainstream school for a variety of reasons.
- The CAM itself is better funded than the transportation. Transportation is the financial orphan and this case study documents the result.
- CAM 7 personnel estimate that proper transportation would result in a 50% increase in average daily attendance at the school.
- Transportation, as expected, cannot be easily separated from other issues, most of which seem to be related to lack of funds.

Recommendations

- Research the obstacles that make it difficult for DIF to put more vehicles into service for schools for children with special needs, including any tradeoffs to arranging school hours at off-peak hours when DIF vehicles are not required for other purposes. Consider phasing in more service for children with disabilities needing transport to more inclusive schools.
- Promote parent involvement on school transportation committees and bring parents into partnership with schools on transportation matters.
- When attendants are needed on vehicles, provide a designated and trained person so that there is no longer a need to transport one adult per student. Better organizing the parents may be a critical factor.
- Enhance safety for students during travel on the vehicle, especially be adding seat belts to secure students in place. There need to be wheelchair areas with securements for wheelchairs and separate seat belts for those who remain in wheelchairs while travelling.
- Prepare a written plan for school transportation with benchmarks and a review process to help assure that it is implemented.
- Provide transportation for taking children to distant facilities for proper diagnosis of their disabilities.

This case study was prepared by Janett Jiménez Santos based on interviews with different stakeholders including 39 school parents, school staff, community members, and also parents of children unable to get to school in Valle de Bravo due to lack of transportation.

SECTION 7. RESOURCE SHARING AND MOBILITY MANAGEMENT



Purpose of this section: *To discuss different ways parents, schools, governments, and the development community can promote school transportation for children with disabilities, including "mobility management" concepts which can open the door to new thinking about school transportation.*

7.1 Introduction

Whether in urban or rural areas, travel by school children with disabilities is one of the most daunting obstacles to sustainable mobility in developing countries. This challenge requires parents, schools, and their communities to cooperate to increase the ability of children with special needs to travel to and from school. Scaling up such cooperation requires education, transport, and other ministries to work together on school transportation issues. The international development community should encourage this process by embracing the need to fund research, pilot projects, and conferences to address resource sharing and mobility management. Cooperative efforts should involve many different people and agencies. This section discusses the roles of parents, schools, the local community, government agencies, and the development community in making this happen.

> *Even as everyone can benefit from the advances of medicine, science, and technology on behalf of persons with disabilities, so sustainable transportation in general may benefit from advances in school transport for children with disabilities. Advances in transport could have "spillover effects" that address the larger need for school transport for all children and sustainable transport for entire communities.*

When it comes to transport for students with disabilities, a key characteristic of resource sharing is the requirement for *trust and trustworthiness* on the part of whoever is providing a ride. Trustworthy drivers who may be part of a community or family network, or who belong to trusted local institutions, are critical to success. This is uniquely important for a segment of the population which is uniquely vulnerable. This principle applies to all of the forms of cooperation discussed below.

7.2 Implementing inclusive community-based education: Models for schools

Acknowledging that the cost and the availability of transportation for persons with disabilities are barriers to inclusive community-based education models, educators use what means are available. Further studies are recommended to evaluate methods, but some options are listed.[1]

- Inclusive Community-Based Education is the Gold Standard: Transportation is key to a functional model; and safe, affordable transportation for persons with disabilities benefits the entire community. Educators hold this model as the gold standard, but it will take time for many communities to develop

1 Suzanne Moore (USA), helped develop the ideas in this sub-section in correspondence dated October 22, 2016.

this. Not all students are prepared to participate, and an individual education program should include a plan to encourage student readiness. The road to this model must include a *standard*. The adoption of a standard, with an individualized education program for each student in the least-restrictive possible environment, and with any needed transportation as a required component, is a road sign to this destination. The adoption of a standard directs our efforts, evaluates our progress, and protects a vulnerable population. This goal will require mutual cooperation among agencies concerned with transportation, education, health and welfare. It is a worthy task.

- Boarding Schools: Many examples exist in communities throughout the world. This alternative reduces transportation costs but removes the child from the home. Educators, again, are knowledgeable of the strengths and weaknesses of this option. **There is a potential for this model to become more inclusive.**

  (1) Schools in the community could be invited to enroll children with disabilities currently in boarding schools.

  (2) A dormitory for children with disabilities could be built on the campus of a community school.[2]

  (3) Another alternative is for existing boarding schools for children with disabilities to invite children without disabilities who live in the community to be enrolled in their schools, creating a more inclusive learning environment in the process. (See the case study from Kenya.)

  Each example would provide special educational instruction as well as inclusive classroom instruction to students with disabilities. It seems reasonable to strengthen existing community resources.

- Distance Learning: Home-based learning is *far* from the ideal of inclusive education, but it could be a practical alternative *if* the other option is no access to education at all. Educators are aware of the strengths and weaknesses of the model and, in all cases, the home environment greatly impacts the quality of the learning experience. Considerations for this model include trained educator availability, transport options for the educator, and computer access with dependable power/internet link/technical support. Home-based learning can be a preferred method only for some students with sensory overload concerns or other variables making school-based programs initially impractical.

7.3 Parents working together to help children with special needs to walk or ride to school

Given the opportunity and the needed resources, parents have important reasons to work together on behalf of school transportation for their children.

- Single mothers with other children face difficult problems when it comes to accompanying their child with special needs to school. Issues of bringing the other children along or providing for their care at home can keep that child out of school. To address this concern, families could pool resources to pay

2 This approach is often used in Kenya by communities of faith who build centers for children with disabilities adjacent to local public schools in order to resolve transportation issues, as reported in conversation January 1, 2017, with Sister Angela Adhiambo, Assumption Sisters of Eldoret, Kenya.

an attendant to accompany several children with disabilities on a school or public transport vehicle. *Parents could also rotate responsibility to serve as attendants for the children*, so that only one person at a time needs to handle this task. This pressing need was revealed in our case studies from Pakistan, Mexico and Nigeria and it clearly is a recurring theme in many countries. One disadvantage is that this solution takes a great deal of the attendants' time, which means that if they volunteer they are not available for gainful employment. Cost of a paid attendant may be prohibitive, unless the school helps out.

- A group of one or more families (hopefully with the assistance of the school) could band together *to hire (contract with on a regular basis) a taxi, small transit vehicle, minibus, or even a school bus for the exclusive transport of one or more disabled students to and from school*. There would be no mixing of the general public and school children. The transport would be door to door. A parent or other attendant could accompany them on the trip, or, if acceptable to the families, costs could be reduced by relying solely on the driver. Our case studies from Mexico and Nigeria note this use of shared transport. Part of the contract with a taxi or other transit company could be to specify a level of training for the driver and that the same driver or small set of drivers be the only ones allowed to drive the students.

- Taking this option one step further, one or more families could *purchase or lease a taxi or small vehicle and operate this vehicle themselves*. One of the members of the group could become the paid driver. This could help keep the payments within the group and promote more accountability on the part of the driver. This could be a good small business opportunity for willing parents. *We suggest that more pilot projects be funded to test this concept.*

- Families may own automobiles or trucks and can safely transport one or more students with disabilities to school. This provides an opportunity to carry the family's student with special needs while providing *ridesharing for children with disabilities of neighbors and friends*. The other families could help pay for fuel and maintenance.

These and other types of mutual support may be enhanced due to the spread of cell and smart phones even among the poorest households.

Sections 3 and 4 on rural and urban walkability also discuss how parents can work together.

7.4 Schools working with parents

Schools should not assume that their only job is to provide an education once the child arrives at the classroom. Where possible, schools should assist by providing transport for their children to the classroom. While Section 5 discusses transport operated by schools, principals and heads of school can also encourage parents to cooperate to supplement this service. We asked the following questions about schools working with parents in our MSU-AEI survey.

Questions about parent coordination	Yes	No
Do parents coordinate with other parents to provide rides to students with disabilities?	10	39
Does your school help coordinate parents who provide rides to students with disabilities?	3	7
Do most parents have access to a cell phone?	9	1
Does your school use (cell phones) to coordinate parents who provide rides?	0	10

We received a high response rate to the initial question. It is suggestive that only one out of five schools stated that parents cooperated with each other to provide rides, although the poverty of parents, or lack of transport in rural areas, may be reasons for this. Only three of these schools went on to indicate that *they help coordinate parents* to provide rides for their children with disabilities, even though many parents may have access to a cell phone.

These results from Africa suggest that many schools could do more to encourage sharing rides in those situations where parents do own vehicles. Schools could more actively coordinate with parents (where this is feasible and not prevented by poverty) or make sure they have the information they need (such as cell phone numbers to call other parents) in order to increase ride sharing. Schools can "put parents together" who might not know about each other. If several parents can work together to purchase trips on a larger vehicle, they might be able to team up with the school, splitting the costs with the school in some way.

We also asked questions about whether teachers themselves sometimes provide rides for students.

Questions about transport by teachers	Yes	No
Do teachers or staff at your school use their personal vehicles to provide rides to students with disabilities?	9	40
Does your school help coordinate teachers or staff who provide rides to students with disabilities?	3	6
Are the teachers or staff who pick up students paid to do this?	0	9
Other (2 schools noted volunteer teachers who provide rides to students)	-	-

We recognize that it is difficult for teachers to be driving children to school. Teachers are heavily tasked with very large classes in developing countries, especially in regular public schools. And in many regions teachers have no access to a personal vehicle. In spite of these obstacles, the responses do indicate that in some cases teachers do provide transportation for some students. If they receive remuneration, it is assumed this is provided directly by the parents.

7.5 The role of the community in cooperation with parents and schools

A discussion of some of the themes of this section is found in Section 10 of our "Paratransit Guide" at <www.globalride-sf.org/paratransit/Guide.pdf>

New opportunities to coordinate ride-sharing may occur in larger villages or district towns which have merchant associations, houses of worship, or other institutions where people come together. People in such institutions tend to know and rely on each other and often are motivated to serve the needs of the community. At the least, they may provide a location to post messages from schools or parents who need or who can provide transportation. In this way, different barter or other arrangements can be fostered.

In many regions, NGOs and different communities of faith have worked together for the good of the community. In some cases they may have vehicles which bring members to their services, but which may be available for other purposes during school hours on weekdays. While such services could be voluntary, they could also be paid for by schools or parents without the necessity of purchasing vehicles. Our case studies from Bolivia and Kenya provide examples of faith communities and the challenges they

face when it comes to transportation for students with disabilities. As discussed in Section 5.3, secular and faith communities could benefit from working together and sharing resources where appropriate.

There may be opportunities for parents to solicit rides to school in the community for their children. As smart phones spread, apps to enable parents to purchase or barter for local transport, or seek volunteer transport, are becoming more important.

7.6 The role of different levels of government in promoting mobility management[3]

Governments at different levels have key roles in scaling up school transportation for students with disabilities. One approach to this task is through "mobility management." Governments hopefully have the ability to coordinate the steps needed to provide mobility management for children with disabilities, namely:[4]

- Catalogue transportation services with descriptive information
- Examine access and paths of travel to and from transportation services
- Create innovative solutions
- Communicate, educate, and build transport capacity
- Evaluate the mobility management system

Mobility management typically begins with an inventory of existing transportation, including pedestrian as well as vehicular modes. For example, one or more city employees could be tasked with finding out which NGOs and which commercial, taxi, and van companies offer services for at least some individuals with mobility, sensory, or intellectual disabilities. Different opportunities may quickly be seen. For example, economies of scale may enable agencies in a town or city to save money on procuring vehicles or in the provision of long-term maintenance, fueling, driver training, or insurance. The recruitment and training of volunteer drivers may also become possible, as frequently occurs in the USA and the United Kingdom.

An example of mobility management

In Charlottesville, Virginia, in the USA, the planning commission of a regional government initiated SchoolPool. "Once a school has agreed to participate, parents can register online or by mail. Enrolled parents are then matched with others in their proximity with similar schedules and left to contact each other to arrange a mutually agreeable ride-share. Some parents also use the service to coordinate bike and walk pools. The website offers best practices and tips for a successful experience."

- from "Beyond the Yellow Bus: Promising practices for maximizing access to opportunity through innovations in student transportation," Center for Cities+Schools, University of California at Berkeley, <citiesandschools.berkeley.edu/reports/CC+SYellowBus2014.pdf>

3 The USA's National Resource Center for Human Transportation Coordination defines "mobility management" as "a process of managing a coordinated community-wide transportation service network comprised of the operations and infrastructure of multiple trip providers in partnership with each other."

4 From correspondence, dated April 28, 2016, with Judy Shanley, Co-Director, USA's National Center for Mobility Management.

Local, district, or state/provincial governments may be able to coordinate "demand management" techniques. For example, students with disabilities travelling a long distance to a school where they board for a week at a time could "bunch" these trips at a certain time and place rather than having the parents of each child having to plan individual transport. At other times, an existing transport line might be permitted to use "route deviation" to pick up one or more students with disabilities at specific times and specific locations which could be a short distance from the regular bus line.

Larger town and city governments might consider contracting with an experienced "brokerage" to coordinate the different types of special-needs transportation for older adults or for persons with disabilities of any age. A brokerage could handle eligibility determination leading to certification of users of the larger system, and assign transport to each person, or alternatively provide discounted travel passes to certified individuals and let them choose their own transportation agency or agencies.

In some wealthy cities such as San Francisco, the provision of municipal transportation and school district transportation are almost entirely separate from each other, including the transportation systems serving persons with disabilities. While this does not exemplify mobility management principles, this approach may work well enough as long as funds are available to keep *both* systems running well. But in developing countries, where often *there is no school transport system,* this thinking causes children with special needs to be left out entirely.

7.7 The role of the development community

One purpose of this guide is to challenge the global development community to lead the way in incorporating discussions of transportation issues into their larger discussions of what is needed to improve the education of children with disabilities in developing regions. Children need to actually *reach* their schools in order to benefit from their accessibility features and learn from better-prepared teachers and improved teaching aids.

The practice of merely acknowledging transportation as a major concern needs to be expanded to include the presentation of detailed and technical *transportation solutions* that already accompany presentations about *other* aspects of inclusive education. Such recommendations tend to be forgotten when discussions focus on vague concepts of "mobility" without breaking mobility into its component parts and addressing in detail the entire travel chain between home and school. Transportation is only one of many major challenges for children with disabilities. But it is the key "to open the door of the school" and admit a child with special needs to an education. For those children requiring transportation, other challenges cannot be addressed without it. The "yellow school bus" that comes to the rescue in the United States does not exist in much of Bolivia or Tanzania or India.



An example of good practice from Quito, Ecuador: Passengers are shown on a bus rapid transit platform facing a platform for school buses. The sign in Spanish refers to the "Quito School Express." Transport and education practitioners need to collaborate to facilitate transportation to school for all children. - Photo by Janett Jiménez Santos.

This implies a change in thinking on the part of agencies such as development banks. For example, the transport needs of children with disabilities – and indeed of children in general – need to be addressed in discussions of bus rapid transit systems and the "last mile connectivity" needed to connect trips from BRT corridors to destinations including schools.

Education and transportation ministries need to talk to each other about these and similar matters. Publications and papers addressing inclusive education need to include specific sections with transportation recommendations. **Health and finance ministries should also be included** in discussions along with education and transportation ministries, as they may handle the cost of subsidies to parents and/or enhanced school transport, or decreased tax revenue due to incentives to procure accessible transportation. Health ministries need to deal with some of these issues, especially estimating the full-cost life cycle budget impact of the lost productivity and increased costs for *not* having this broader population educated and contributing to the economy. These complex matters require the assignment of personnel, a planning process with step by step benchmarks, performance indicators, and all the other activities associated with addressing any major responsibility of governance.[5]

5 We acknowledge input from Dr. Robin King, Director of Urban Development for the WRI Ross Center for Sustainable Cities, in correspondence dated October 1, 2016, in underlining the roles of different ministries. This sub-section takes up matters also noted in Section 5.4.

Case study: COSTA RICA

Transportation subsidies for parents

Introduction



Travellerspoint - Creative Commons

Costa Rica, a small country with a population of about 4.5 million, is often cited as a Central American success story. Long known for having more teachers than soldiers, Costa Rica's literacy rate is over 96%.

More than 800,000 young people ages 5-17 attend some 4,000 primary or secondary schools in Costa Rica. With a 4-5% disability rate for this age group, the data implies that some 30-40,000 of these students have some kind of disability using national criteria.

To serve these students, Costa Rica has a decades-long history of developing a special education system that currently includes 22 special education schools, 35 integrated classrooms for deaf children, 525 integrated classrooms for children with intellectual disabilities, and some 600 resource rooms. Around fifty itinerate special education teachers provide assistance to special needs children in Costa Rica's regular school system.

With a population that is nearly three-quarters urban, many of these students live close to a school. Others, notably in rural areas, do not. Rural areas are often mountainous and roads require maintenance due to heavy rains during part of the year. Indeed, Costa Rica scores only at the 55th percentile among all nations in terms of quality of its overall transport infrastructure.

Also, family incomes are lower in rural areas and many parents and caregivers find it difficult to pay for the cost of transportation to school for their children with special needs.

Transportation subsidies in Costa Rica

To address this need, Costa Rica has created a transportation subsidy for 3,000 primarily rural parents and caregivers who cannot afford to pay transport costs to get their children with disabilities to and from school. These parents are part of a larger number of parents who receive a subsidy for vulnerable children, unrelated to disability. Requirements to receive a subsidy are stiff, although some exceptions are made:

- The parents must show that the child has a disability, for example by a medical report.
- Per capita family income must meet low-income criteria.
- They must live at least three kilometers from the nearest school (nearly two miles), which is a large distance for children with disabilities who cannot walk such a distance. Evidently, exceptions can be made for mobility-impaired children.
- Their child must go to the nearest public school. Again, exceptions may be made.

The local schools play a major role, with parents submitting documentation to the school, which provides a preliminary assessment prior to sending the applications on to the Ministry of Education. Upon approval, subsidy funds are sent to each school on a monthly basis.

Parents enter into agreements with a local transport provider who provides service on a route to a given school. The school then pays the trans-

portation companies. The annual aid per child appears to average US$800-900, or a total of roughly US$2.5 million a year for the approximately 3,000 children in the program.

All in all, Costa Rica is a well governed country, scoring well on Transparency International's "corruption perception index" among the top quarter of countries in the world. One evidence of this is that the documentation concerning this subsidy is posted on the internet by the Ministry of Education. We have reviewed the array of different forms that are required to prevent duplication of payments or to address new circumstances as children enter and leave the subsidy system or as transport routes are redefined. One is struck by the complexity involved in administering a program such as this. Costa Rica's transportation subsidy is relevant to countries which have the capacity to administer such a program, combined

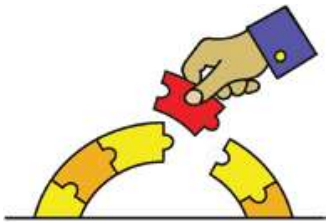


with the development of an array of schools and prepared teachers to create a workable system. Countries without the current capacity to administer this type of ongoing program should prepare carefully before initiating this approach. In spite of many challenges, Costa Rica has developed a balanced program: schools + prepared teachers + affordable transportation = learning opportunities for children with disabilities.

The reader is invited to see the case studies from Japan and India, which also illustrate the use of subsidies to address transportation needs of qualifying children with disabilities.

This case study was prepared by Tom Rickert based on Costa Rican sources. He lived and worked in Costa Rica for a period of six years earlier in his career.

SECTION 8. SOURCES OF FUNDING FOR SCHOOL TRANSPORTATION



Purpose of this section: *To describe current funding sources for school transportation and suggest actions to promote additional funding to increase transportation to school for children with disabilities. With the exception of the box below, this section focuses on vehicular transport.*

8.1 Introduction

Many if not most of the barriers to children walking or riding to or from school in developing countries are based on an actual or perceived lack of funds. This section mainly discusses possible sources of funding for ***bus or other vehicular transport*** for those children who cannot walk to school due to a disability. ***See the box at right*** for suggestions on funding safe paths to school *for students who walk or who use wheelchairs, bicycles, or tricycles*. A second box, at the end of this section, lists actions that individual donors can take when seeking donations to assist schools to obtain vehicles.

This section presents common sources of funds currently used for school transport in many countries as well as potential funding sources which need to be explored.

Funding to help students walk to school

Financing is required to support improvements to pedestrian sidewalks and footpaths as well as bicycle and tricycle paths. This topic has a growing constituency among advocates of "complete streets" in sustainable cities. A search engine may help find the various sources of national, state/provincial, or local government funding for your region in order to upgrade both rural and urban walkability to schools.

Research is needed on how to incentivize local district and town authorities, and local communities, to commit resources to improving rural walkability. Different types of taxes are levied to improve walkability in many countries. Meanwhile, schools and other interested agencies should take advantage of new construction to promote accessible sidewalk construction. They should also promote annual budgets which contain maintenance funds for existing paths and sidewalks.

International resources for major transport and pedestrian infrastructure projects include development banks such as the African, Asian, Caribbean, East African, Inter-American, Islamic, and West African Development Banks; and the World Bank, the European Bank for Reconstruction & Development, and various other international funding consortiums. Appropriate ministries of transport and/or education should be encouraged to seek funding from these agencies to assist major projects to improve walkability.

8.2 Transport funds provided by parents and caretakers of children with disabilities

Payments by parents are currently a major source of transportation funds in those locales where some type of public transportation is available. The household income of families of children with disabilities is often very low. In many countries the head of the household is usually a mother, who must find employment for her family to survive while also providing funds for transportation, made more difficult if she, or someone she pays, must accompany the child on the vehicle.

Questions to ask:

- Do local transport agencies have a policy of charging no fare or providing lower fares for school-age children?

- If parents must pay the cost of transport on a vehicle operated by a school, is some provision made by the school to waive or lower the cost for those parents?

8.3 Subsidies provided directly to parents, caretakers, or students to assist in paying transport costs

The use of government-funded subsidies is discussed in the case studies from Costa Rica, India, and Japan, and is also found in Ecuador, Sri Lanka, and other countries. Such subsidies can be based on criteria such as the degree of disability of the student, the income level of the student's household, and/or distance to school. While requiring resources to administer such a program, it can be tailored to the specific needs of parents. One advantage is that with such a subsidy, sometimes called a "user side subsidy," parents have some choice as to the type of transportation used by the student. Also, the amount of subsidy as a percentage of transport cost can vary according to available resources. For example, Japan pays a higher subsidy, while Costa Rica provides an annual subsidy averaging US$800-900 for approximately 3,000 children who qualify for their program, while India pays far less.

This chart, from Yoshito Dobashi's research report on Japanese school transport, illustrates how such a subsidy can fit the needs of a particular country:

Reference on administrative procedures for subsidies to support special-needs education (excerpts)

Transportation fee for commuting to school

The ratios of local government contribution and national government subsidies are set as below, taking into consideration the level of education and income of each household.

	Income level	National government	Local government	Pupils/students
Kindergarten	All	100%	0%	0%
Elementary school	Lower income	100%	0%	0%
	Middle income	50%	50%	0%
	Higher income	50%	50%	0%
Secondary school	Lower income	100%	0%	0%
	Middle income	50%	50%	0%
	Higher income	50%	50%	0%
High school	Lower income	100%	0%	0%
	Middle income	50%	0%	50%
	Higher income	0%	0%	100%

High school (advanced courses)	Lower income	100%	0%	0%
	Middle income	50%	0%	50%
	Higher income	0%	0%	100%
Special education class	All	100%	0%	0%

(A) The subsidies apply to fees incurred for the most economical routes of public transportation, private car, or boat. It also applies to fees incurred for public or private buses that are contracted. Fees for toddlers are free if they are accompanied by an adult. Transportation fees should be calculated based on the individual situation of each pupil/student in accordance with their stage of growth, disability level, safety and other related issues.

(B) The following items may be included in transportation fees.
  (a) Fuel costs for private cars and toll fees may be subsidized if the school principal approves it as necessary in consideration of the child's situation. This applies only to round trips to and from the child's house and school. Fuel costs should be calculated based on a pre-established regulation in each school.
  (b) Transportation fees may be subsidized if dormitories are located far away from school.
  (c) Transportation fees may be subsidized in cases where school bus services are not available.
  (d) Transportation fees may be subsidized for the repair of bicycles in cases where the child commutes to school by bicycle.

(C) Transportation fees shall be calculated based on actual costs. Purchasing a pass and applying for a discount for disabled people are strongly recommended.

(D) The fee to repurchase a pass that has been lost may be subsidized after careful examination of the facts.

(E) Transportation fees to attend out-of-school activities will not be subsidized.

(F) Pupils/students with low vision, hearing difficulties, or language disabilities, who receive special instruction in accordance with their disabilities, are eligible to receive subsidies for transportation.

Source: National Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2012 (private translation, modified by Mr. Dobashi)

One concern with subsidies relates to the difficulty some parents may face in accessing such a system. The Lanka Forum on Rural Transport Development (LFRTD) sends us this report:

> "An allocation of Rs 3000 a month [about US$20/month as of November 2016], to transport children with disabilities, is made available through the [Sri Lankan] Department on Social Services, on request and on providing evidence to qualify for the entitlement. However, remoteness of location and lack of awareness of this provision, long procedures to access the support, availability of funds at time of request etc. have reduced capacity of many parents/guardians to access this support for their children with disabilities. The system, discussed in one case study in the publication [Costa Rica, in the case study preceding this section], where funds are provided to schools to pay for transport of children with disabilities, provides an alternative perspective. This also has the potential to mobilize non-state donors, including the private sector to contribute to such funds."[1]

1 Message received October 24, 2016, from Nilusha Dhanasekara, Coordinator of the Lanka Forum on Rural Transport Development.

8.4 Government funding to directly operate or contract for transportation of students with disabilities (and other categories of students as appropriate)

In many wealthier countries, governments pay the entire cost of operating or contracting for large school bus fleets. The case study from the Newport-Mesa Unified School District represents a school-operated system. In the USA, local district funds are often the main source of funding, typically supplemented by an array of state and federal programs. Curitiba, Brazil, and Sindh Province, Pakistan, also directly pay for bus transport for their students, as does Hong Kong. Note that government funding can apply to different transportation models, including both direct operation and contracting out to other public, private, or NGO transport agencies. Large cities such as São Paulo, Moscow, Istanbul, New York, and Cape Town operate various models of transportation on behalf of persons with disabilities.

8.5 Government funding to make it easier for schools to obtain vehicles

Governments could provide funds to pay for or subsidize the procurement of school buses and other vehicles for use by public or private schools, both for regular schools that welcome students with disabilities, and special education schools. Typically the school might be required to "match" a portion of the cost of the vehicle in partnership with the government. The government in turn would normally require evidence that the vehicle was used for school transportation throughout its normal useful life, that the school provided preventive maintenance and other periodic maintenance to keep the vehicle in good condition, and such other conditions as are appropriate. In the USA, federal funds awarded in the "5310" grant program assist nonprofit and some public agencies by providing 80% of the initial cost of the vehicles to meet the transportation needs of elderly persons and persons with disabilities. Grants are awarded by a program within each state and federal funds flow through the states to the agencies procuring the vehicles. Programs similar to this could especially assist schools and other agencies which are able to fund ongoing operation of one or more vehicles but are not able to fund the initial cost to purchase the vehicles.

In Hong Kong, the Labour and Welfare Bureau of the government funds the school transport carried out by the Hong Kong Rehabilitation Society. Those schools operating their own special education transportation rely on vehicles procured by the Hong Kong lottery fund and Hong Kong's Jockey Club Charity Fund.

In Brazil, the Ministry of Education has maintained two national-level programs to support transportation to school for rural students. The first (known as PNATE) assists with operating expenses or payments to transport providers, based on the number of rural students using transportation, their income levels, and related criteria. The second (known as Path to School), provides a line of credit from Brazil's National Bank for Social and Economic Development for the acquisition of new buses, minibuses, and other vehicles. This program enabled the purchase of more than 35,000 school buses during 2008-2013 and assisted in procuring more than 170,000 bicycles as well as the donation of 674 vehicles, according to a report prepared for UNESCO.[2] This model, for qualifying rural students, could also be explored for relevancy specifically to students with special needs.

2 "Education for All 2015 National Review Report: Brazil," 2014, prepared by Brazil's Ministry of Education.

Alternatively, governments could waive or reduce customs duties on vehicles imported to transport students with disabilities, while also requiring that such vehicles have designated safety and accessibility features.

8.6 Taxes and fees to provide governments with the funds to assist transportation for students with disabilities

Various types of taxes are used in different countries to pay for transportation for disadvantaged groups. These include a portion of sales taxes or property taxes, hotel taxes, and taxes that are levied on lottery earnings, casinos, or the sale of liquor or tobacco.

Governments could also fund school transport from fees to license the operation of private or commercial vehicles or transportation systems, as well as parking fees, increments on parking fines, impacts of commercial and residential development in central business districts, "congestion pricing" which charges users more when driving during peak traffic hours when they drive in central business districts, road tolls, or portions of taxes on vehicle fuel.

8.7 Funding by governments, development banks, foundations, and corporations to help agencies plan and develop school transportation and/or initiate pilot projects to demonstrate if specific ideas are workable

The current emphasis on expanding inclusive education for children with disabilities provides an opportunity to include school transportation under programs which previously have failed to do so. One way to approach this need is to provide funds to enable schools, school districts, or others to carry out a structured planning process that takes advantage of what has been learned in other countries while also testing innovative transport concepts.

Within this larger approach, grants or venture capital funds could encourage entrepreneurs to test different models of ride-sharing which could assist low-income households which include children with disabilities. Issues of trust and trustworthiness between parents and their children, on the one hand, and drivers of vehicles responding to ridesharing apps, on the other, would have to be addressed. Ridesharing provided by local associations, NGOs, or communities of faith might help address this concern.

While it is unclear how a for-profit company might sustain itself solely by transporting children of low-income families in rural areas, another approach would be to build up the image of the company as socially responsible by offering, for example, a trip to school for a student with a disability each time a wealthy client uses their limousine service.

8.8 Revenues from the operation of school vehicles on behalf of other schools or agencies

One or more schools may find that their own vehicles are available during much of the school day. They may be able to contract with other agencies when their school vehicles are not in use. Government-operated or private schools could offer services to each other if one or the other system had spare capacity at certain hours. Any fees should be negotiated prior to initiating such services if it is desired not to create a precedent for providing such services free of charge.

8.9 Provision of school transportation by other agencies with vehicles available for use at times students need transportation

Communities of faith may have vehicles which are not used during much of the week, typically Mondays through Fridays in many countries. Such services could be offered at a low rate as a community service, or could be contracted with schools at favorable rates due to economies in the operation of the vehicles.

Some medical or social services may have spare vehicle capacity to use for school transport before or after their own operations. An example is found in the case study of CAM-7 in Mexico. In that case there is a need to clarify the role of vehicles used by the government "DIF" social service agency to also provide school transport for students with special needs. Extending insurance coverage on the DIF vehicles would evidently enable the vehicles to be used for school transport with less need for parents of each child to also travel on the vehicle.

8.10 Donations from individuals, foundations, corporations, communities of faith, embassies and consulates

Although we include this category last, it is in fact one of the most common sources of funding for vehicle procurement in many developing countries. Donations are "the elephant in the room" when it comes to current funding sources for a great many schools serving children with disabilities, including funds for their transportation. Note, however, that transport-related donations tend to be for purchase of vehicles and not for costs of vehicle operation or maintenance. Care must be taken to support such costs to assure many years of good service. Joanne Umolu in Nigeria notes that "these expenses need to be built into the assistance by donor agencies and not just included as an afterthought."

Often such donations can be for highly specific purposes. Our case study from CAM-7 in Mexi-

Tips for individuals who seek donations for school vehicles

Middle- and upper-income individuals in wealthier countries, and similar persons in all countries, can help children get to school by donating to assist schools to procure and maintain vehicles. Typically, vehicles should be purchased locally ***by*** the school, not by a donor in another country. They should meet pollution standards while incorporating safety and accessibility features such as safety belts. Here are some proven ways to raise funds for vehicles:

- When travelling in less wealthy countries, visit schools and discuss their transportation needs for children with special needs. Document your visit with photos, videos, and facts about the school and the children. (continued on next page)

co notes the donation of "tickets" for fuel, which are popular in Mexico and can be transferred to non-profit agencies. The Mexico case study also notes a golf tournament at a country club with proceeds going to help procure a van to transport children with disabilities to school.

Individuals with discretionary income can be encouraged to donate, and individuals or corporations, if desired, could be offered the opportunity to put their name on the vehicle. Often such donations are tax-deductible in the country of the donor. Alternatively, advertising on the exterior of vehicles might be purchased by corporations or provided in response to their donations. See the case study that follows this section for an example of what an individual donor can do to assist with transport to meet the needs of school children.

In many countries, communities of faith have played an impressive role in founding and operating schools for children with disabilities. This role sometimes includes transportation to assist children to get to their schools. The Eden Social Welfare Foundation in Taiwan provides an impressive example. The founders of the paratransit operated by Hong Kong's Rehabilitation Society system offer another.

In general, school officials should make friends with public officials and advocate for the needs of their students. They should also know the funding criteria of any source they approach for donations. Having a personal friend at a business or other potential donor agency is very helpful.

(from previous page)

- Prepare posters, videos, PowerPoints, social media, and newsletters about the need for transportation.
- Invite friends and neighbors into your home to explain the need for school transportation for children with disabilities.
- Encourage others to visit schools in developing countries during their travels. First-hand experience is invaluable in giving people a desire to help.
- Offer to make presentations at your local schools, clubs, civic groups, and communities of faith. Local schools or clubs could be encouraged to "adopt a school" in another country. Children and teachers at a local school may wish to carry on communications with their peers in other countries. Communities of faith in one country should be encouraged to help their peers at schools in other countries.
- Make sure that the schools you help then thank the individuals who have donated to purchase and maintain their vehicle. And thank each donor yourself. This is a "must" if donors are to continue making contributions. Encourage schools to send photos of their transportation in operation.

Concluding comment

One purpose of this guide is to help bridge the gap between different groups with a common interest in getting children with disabilities to school. Development agencies, foundations, international NGOs, and communities of faith with an interest in school transport need to be in dialogue about their common concern for adequate funding to plan, test, and implement approaches to improved transportation to and from schools which serve children with disabilities.

Readers may wish to consult AEI's guide, *Making Access Happen: A guide for advocates and planners.* Go to <www.independentliving.org/mobility/rickert200302.pdf>

Case study: REACHING DONORS IN THE USA

One person can make a difference

by Susan Rickert



I am a private individual touched by the lack of transportation for children with disabilities to get to school and to medical services in the developing world.

While at a public secondary school named Banjika in the village of Bashay in Karatu, Tanzania, I learned that children and staff who had a medical emergency had no means of transportation to the hospital which was located in a town about 15 kilometers away. No vehicles of any kind were available at the school of 540 young men and women, plus teachers. The village was remote. There were no transport services.



Privately, I raised the needed money from my friends for the school to purchase a Bajaj, the three-wheeled auto-rickshaw shown with the students in the above photo. The Bajaj is capable of carrying the driver (usually the school principal), the sick or injured person, and another staff member or friend to get to the hospital. Since then, many students and staff have been successfully transported to be treated for sicknesses such as malaria or for accidents.

Sometimes, action on the part of one person, moved by the need, can result in a concrete solution, at least for that particular school.

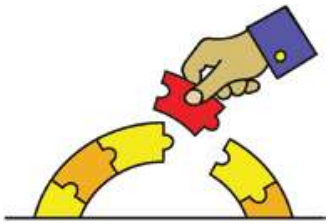
In 2015, I learned of a need at a children's center for 60 children with disabilities in Kitale, Kenya. Many of the children with mobility challenges had neither wheelchairs nor other mobility aids to allow them to go to primary school. They resorted to crawling and being carried around the center by the staff members.

Appealing to my community of faith and to friends, I was able to collect money for the children's center to purchase five wheelchairs locally, along with other mobility aids to allow at least eight children to attend school. Thus the wheelchairs *became the first means of transportation*, getting the children to a used school bus owned by the center. The students could then use their wheelchairs for mobility while at school.

The title of the guide prompts each one of us to ask ourselves, "What is MY role in getting students with disabilities to school?" This is an example of what individuals can do by activating the goodwill of others. Long-term solutions and larger efforts must involve the major players in a given country. But aid by individuals has its important place in meeting specific needs, and a surprising portion of the resources available to schools in the poorest countries is due to such efforts.

The author is a former USA Peace Corps teacher in Tanzania and returns there every year. - Photos by Karen Ande (top) & Justine Joseph (bottom)

SECTION 9. TRAVEL TRAINING FOR CHILDREN WITH DISABILITIES



Purpose of this section: *To discuss how to provide children with disabilities with the skills to travel with confidence on a school bus and, especially when they grow older, to travel with confidence on regular public transportation*

9.1 Introduction

For further information, go to the case study following this section, titled " 'Bus in the Classroom' at the Newport-Mesa school district."

"Travel Training" is a formal and systematic training program to help children and adults with disabilities to safely and effectively navigate whatever transportation options are available to them. Travel training can also be used with elderly persons, with people who do not understand the local language, and with immigrants who are new to the community. Travel training is a fairly new concept. It has proven to be effective in helping students with disabilities and adults to become more independent.

Using public transit, taxis, or school buses can be difficult. Students with disabilities benefit from specific one-on-one or group training in order to address a range of questions if they are to have the skills and confidence to use the transportation options available to them. Customized training may be needed to deal with a student's specific physical, intellectual or emotional disabilities and the challenges those disabilities pose to the effective and safe use of transportation options. A school or parent may choose to train relatives who, in turn, can provide the necessary training for the student. In some countries, a variety of different cooperative training activities are arranged, using family and community resources in order to keep expenses as low as possible.

9.2 Topics to address in travel training

With travel training, questions and concerns are answered which might otherwise render a student with a disability unable to use transportation. Parents are often reluctant to risk allowing their child to use transportation to school. It is essential for them as well as for their children that basic questions are answered, including:

- Where does the bus or other vehicle go?
- Where to get on and get off?
- How to find the correct vehicle if there are several at the stop at the same time (for example, at a large school)?
- How to get off the vehicle?
- How to get to and from the bus stops?
- What accessibility features are on the vehicle (seat belts, wheelchair lift, wheelchair securement, storage adequate for a folded wheelchair, etc.)?
- What type of mobility devices are supported on the vehicle?
- What are the behavior rules on the vehicle?
- What can the child take on the vehicle (including medications)?

- How to overcome being scared?
- What toileting options are on the bus, if it is a specialized vehicle?
- What bullying prevention is available?
- Who will help the student if needed?
- Can an assistant or aide also be transported?

Additional concerns need to be addressed if the student is to use regular public transportation, especially as the student grows older. These include:

- The transportation services which are available
- How to understand a transit map or transit schedule
- Whether or not the driver can notify the student of his/her stop
- How to transfer between different vehicles or different modes of transportation
- The cost of fares and the availability of discounts for persons with disabilities
- How to pay the fare
- How to make a trip reservation if one is necessary
- Emergency procedures including what to do if the student is lost, is bullied, or misses the bus, including how to use a mobile phone if one is available
- Specific seating arrangements and accommodations for specific disabilities

9.3 Further comments about travel training

- ***Travel training is often labor-intensive.*** It can take several hours of individual training or group training to be effective. The parents/guardians should first explore the various transportation options that might be available for their students with disabilities. Once the focus of the training is established, a classroom program supplemented by community- based instruction should be established. Such instruction helps cement concepts learned in the classroom and helps the students to apply the lessons learned. The mix between in-classroom teaching and community-based instruction will vary from student to student based upon abilities and needs.

- ***Travel training for groups can be reinforced by activities sponsored by transport agencies.*** For example, the Transjakarta bus rapid transit system in Jarkarta, Indonesia, targets a program towards low-income children ages 7 to 14. The aim is to introduce children to mass transit from an early age. The program can be especially effective with children from low-income families who may need this chance to understand the system and visit some of the key tourist attractions which the system reaches. Children with disabilities could also clearly benefit. A pilot project could show how the same concept could apply to informal operators of smaller vehicles, provided the drivers were paid to explain how their vehicle operates and how to safely get on and off the vehicle.

- ***Travel training may include training teachers*** about the problems facing students with disabilities. This enables teachers to understand the fears of the students and can address and reinforce the travel skills needed as part of their daily lessons. Travel training should remind the drivers about the difficulties and fears of students with disabilities. This will help them better anticipate and deal with these issues.

- ***Travel training may include the use of school bus drivers and other transport staff as teachers.*** Transport staff have been shown to be effective teachers in both the USA and Japan. See the case study that follows this section.

- ***Travel training in primary and secondary schools enables students with disabilities to live more independently as they grow older and as adults.*** When students with disabilities graduate from secondary school, it is hoped they will use their travel skills to access work, medical services, social services, and possibly continue their education. The travel skills they learn at school will help them navigate local transportation options to find a job in the community and be dependable and on-time employees. Even if their school does not offer transportation for students with disabilities, travel training for these students could provide a key to a more independent adult life.

The Lanka Forum on Rural Transport Development in Sri Lanka, in their review of this guide, states that "Developing confidence of children with disabilities to use public/specialized transport modes more independently is an important aspect. It is also necessary to raise parents/families' awareness and prepare them to allow children with disabilities to use accessibility-enabled public transport modes." The report notes that over-protectiveness of families can negatively affect the confidence of children and youth with disabilities to use public transportation.[1]

For further information on travel training for children, go to

- Association of Travel Instruction (<www.travelinstruction.org/travel-training>)
- The Bus In the Classroom (<www.nmusd.us/BIC>) and the case study on the next page
- National Center for Mobility Management (<nationalcenterformobilitymanagement.org/by-topic-travel-instruction/>)

Go to Appendix 3 for grade-level transportation standards, for consideration where applicable.

1 Message received Oct. 24, 2016, from Nilusha Dhanasekara, Coordinator of the LFRTD.

Case study: USA

"Bus in the Classroom" at the Newport-Mesa school district

by Pete Meslin, Director of Transportation, Newport-Mesa Unified School District, USA

The situation in the USA

In the United States, the access issues faced in some developing countries do not typically exist.[1] Children with disabilities in the USA ***must*** be provided with free and appropriate transportation if they need it in order to get to and from school. The Individuals with Disabilities Education Act is a national law which mandates that students with special needs are entitled to transportation to educational services until they are age 22. Transportation for those who are eligible must continue to be offered as long as the student is not capable of accessing the school like his/her non-disabled peers.

A key concept in the USA is that each child who is eligible for special education must have an ***"Individualized Education Program"*** (called an IEP). This document, which specifies services and goals, is created through a team effort and must be reviewed at least yearly. When transportation is necessary for the student to access the educational program, this transportation is considered a ***"related service"*** which must be provided by law.

Another key concept is that students must be educated in the ***"least restrictive environment"***, which means they must be served, to the extent possible, like all other students. This is not only a civil rights concept but, in practice, it is meant to assist children with disabilities to be able to learn the skills they need in order to live as independently as possible when they become adults. The goal, therefore, is for students to receive the transportation they need in such a way that they learn to become more independent in their use of that transportation.

"The Bus In the Classroom"

In 2014 the Newport-Mesa Unified School District in southern California developed a program aimed at improving transportation independence skills for students with disabilities. The goal is to facilitate the mastery of these essential skills and thereby foster development of student independence and safety. The Bus In the Classroom program provides curriculum for teaching safety skills to students with special needs. These skills can eventually be generalized to public transit services. (See box on page 103) Students learn how to wait properly for the bus, board the bus, ride the bus, and exit the bus. There are several unique features of this program which are explained below.

- ***Taught by Drivers:*** School bus drivers, who have the most knowledge of the skills involved

1 In the USA, most parents are aware of their right to advocate for their children with disabilities, and of the requirement that the student have access to the school. They are required to receive a copy of their rights at every meeting concerning their child's Individualized Education Program (IEP). These meetings are designed to review the success of the planned school program and to revise the plan accordingly. The legal process and the right to bring complaints or lawsuits against the responsible school district help ensure compliance with the law. Parents and their advocates or lawyers may file due process complaints when they believe the services provided are not free or appropriate. These complaints, investigated by the federal Department of Education's Office of Special Education Programs, can lead to adjustments to the program, and/or compensatory services may be awarded to the student. Alternatively, if a parent or student believes the student was discriminated against because of his/her disability, either may file a formal complaint. This complaint may result in monetary compensation for the parent/student.



in safe transportation, are used to teach five one-hour classes. These teams of four drivers can also reinforce the freshly learned skills in their everyday jobs of transporting students. Fears that drivers cannot effectively teach because they don't have formal training in teaching have proven to be unfounded. The skills of experienced and motivated drivers in managing student behaviors have proven very helpful in classroom teaching, illustrated in the above photo by Tom Rickert. In fact, by working with students in a teaching setting, drivers learn more about specific disabilities and which behavior modification techniques work best for each student.



Bus driver Hope Nguyen works with an autistic student's storyboard lesson about riding the bus safely.
- Photo courtesy of NMUSD

- ***Rigorous multi-level curriculum:*** The curriculum was designed using the latest scientific research on how students learn. It makes heavy use of pictures and other visual teaching tools like storyboards. For students who easily master basic skills, more advanced skills can easily be incorporated into the lessons.

- ***Taught in different settings:*** In the classroom, a mix of lecture, storyboard, and small group instruction are used. Additionally, students practice their transportation skills in the classroom. *However, one of the unique and most effective features of this program is that students then practice on the school bus*. This allows students to connect the theory that they learned in the classroom with the reality of the actual transport situation.

- ***Involvement of school teaching staff and parents:*** Although transportation staff are the primary teachers of this program, classroom teachers and instructional assistants are encouraged to participate as well. The final (fifth) lesson involves taking the school bus to the students' bus stops and demonstrating the skills students have learned for the parents. The program also takes the opportunity to teach both the student and the parents about separation skills if the opportunity is available. Transporters in the USA frequently find that bus behaviors improve when students and parents have learned to effectively transition from the home setting to the school bus.

- ***Taught early and often:*** Since the Bus In the Classroom program uses very few resources, it allows the program to be taught frequently. Depending on the number of transport staff and the availability of drivers during the middle of the day (when classes are taught), it may be possible to teach the program in every class, every year.

However, even if it is taught every two or three years, most students will acquire the essential skills before they enter an adult transition program. Each time the student is taught the program again the skills will be reinforced and additional skills can be easily added. Notably, students become immediately safer having gone through the program. The benefits of improved school bus safety behaviors are better both for the student and for others who would have to deal with behavior incidents.

International applicability

This program has a complete transportation skills curriculum which should be applicable as a model for transporters in a variety of countries. Even if accessible transportation in other countries involves different skills, the teaching curriculum can still be applied.

The program utilizes school bus drivers in the USA, while in some countries it could utilize drivers of smaller vehicles such as auto-rickshaws. The idea of using the transportation provider as a teacher and assessor of skills, and as a reinforcer of student skills, applies regardless of the mode of transportation provided. Transportation providers who teach the program will find that students' transportation-related life skills improve immediately and student independence skills improve over time. Teaching it more frequently will only enhance these trends and will help students develop safety habits – not just safety skills.

Such training needs to be adapted to fit the situation in countries where transportation is only beginning to be adequate. Training can be adapted to help in several ways.

- Training can help students with disabilities to travel more safely. For example, students learn to avoid the "danger zone" around a bus where statistics show that accidents are most likely to occur. They also learn to enter and exit the bus properly, without assistance when possible.

- Training can reduce unsafe and improper behaviors and thereby reduce the need for parents or other adults to accompany students with disabilities on a transport vehicle. This type of training is critically important when it is the only alternative to keeping the child out of school. Many working parents do not have time to accompany their child on a vehicle transporting them to school. Several case studies note this is a major problem in many countries.

- Training helps prepare children for independent living as adults. It is widely recognized that success in life-skill training significantly boosts student self-esteem. This, in turn, greatly contributes to successful transitioning to independence.

- ***Such training also makes transportation a more viable concept that may help persuade parents and schools to move from boarding students in special schools to a more inclusive model of transporting students daily from their homes to learn alongside other students. For some students, it could also eliminate costs and time otherwise required by assigning parents or others to accompany children on the bus or other vehicle.*** (Note that in ***some*** cases it is indispensable that an attendant or other adult be on a transport vehicle, to address some behaviors or medical concerns.)

Transitioning to adulthood

In order to increase independence, the law in the USA requires that starting at the age of 16 each student's educational plan will include a component that addresses adult transition. For many students, special education entails much more than just academic preparation. It includes training in a variety of life skills. These may include social skills, likely work skills, and mobility or transportation related skills. For example, in the USA many students with special needs are independent enough to get on the school bus with non-disabled students at the neighborhood bus stop. Unfortunately, in the USA many parents choose not to enroll their student in adult transition programs. Students who do enter the program are successful in learning many life skills. However, frequently they fail to develop independence with regard to transportation. That is, not all of the necessary independence skills are mastered before students "age out" of the program. This can occur when transportation providers segregate students with disabilities, for example by having the bus pick them up right in front of their homes when the students have the ability to walk to a nearby bus stop and join other students who are waiting for the school bus.

Summing up

- Schools need to set goals for students with disabilities in an education plan tailored to the needs and abilities of each student. These goals need to be tailored to the available resources.

- Transportation must be an element of this plan, whether it states that the student is able to walk to school or must ride in a vehicle. The plan needs to address who is to pay the costs of any transportation by vehicle, whether these costs are paid by the parent, the school, or by some other agency. If the student is going to walk to school, the plan may need to note special circumstances, such as the school or a parent providing someone to accompany the student when needed.

- "Travel training," such as the Bus in the Classroom program, will help the student to be safe on the bus, and may reduce costs for whoever pays for the transportation.

See Appendix 3 for further information.

The author was Chair of the Writing Committee that prepared "Access & Mobility: A guide for transporting students with disabilities in California," published by the California Association of School Transportation Officials (2nd edition, 2010) . Contact the author at <pmeslin@nmusd.us> for an electronic copy.

PART 3.

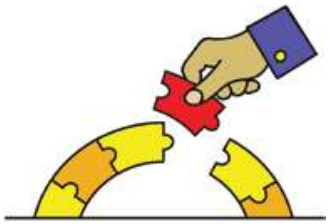
INFORMATION FOR TRANSPORT PROVIDERS SERVING CHILDREN WITH DISABILITIES

Sections 10-13

Suggestions on

- Contracting out for school transport services or operating your own vehicles
- Establishing policies and procedures to transport children with disabilities, and to select and train drivers (and aides or assistants if needed)

SECTION 10. CONTRACTING WITH OTHERS FOR SCHOOL TRANSPORTATION



Purpose of this section: *To present options for having other persons or agencies operate transportation on behalf of families or schools with children with disabilities*

10.1 Introduction

Providing high-quality, comfortable transportation is difficult, especially when the transportation has to be safe and students with disabilities must be treated properly. Transportation is costly, requiring the contractor to provide vehicles, fuel, vehicle storage, and vehicle maintenance. The provider must also conduct driver training and monitor the service for quality and safety. Most schools do not have the funds to start up a transportation operation, nor do they readily have the needed expertise. However, in many cases there are transportation providers that do have the expertise and can assemble the necessary resources for a price.

"Contracting with others" means when a school, a family, or a group of schools or families make a business agreement with a transportation provider to transport one or more students with disabilities, according to specific requirements and for a specific price.

If possible, contracts should be written and carefully reviewed by both parties. Verbal agreements may serve as contracts for very small-scale transportation, but they may be misinterpreted and are not a preferred option. When considering contracting it is wise to consider ease of implementation and cost. Other factors to consider include geography, student population density, and the level of students' disabilities. Contracts may be entered into with one or more individual vehicle owners or operators, taxi companies, public transit systems, or other schools. In some countries there are large companies specializing in school bus services. Depending on national, regional, or local conditions any (or some combination) of these options might be the most appropriate.

Over time, one or more schools or families may find that it is appropriate for them to start with one option and then move to other options as they gain more experience or as transport providers in the area become more aware of the potential for serving students with disabilities.

The case studies from Costa Rica and from Brazil provide examples of different types of contracting. Also go to the section on "NGO Transportation," pages 71-75, at <www.globalride-sf.org/paratransit/Guide.pdf>

10.2 What is covered in a contract to get children with disabilities to and from school?

The language of the contract would normally include the following matters:

- The time period of the contract (such as a semester or a school year)
- Which students with disabilities are to be transported

- When they are to be transported, both to school and from school
- The locations where students are picked up and where they are taken
- The different accessibility and safety features to be provided on the vehicle, and any required insurance coverage
- The price (per trip or per time period), and the method and timing of payment
- The process for selecting drivers or attendants, to ensure that they are of good moral character by requiring a documented background check where available
- Driver training requirements, to ensure they are competent drivers and understand the needs of the children they will be transporting
- An assurance that other passengers would not be transported in the vehicle at the same time that students with disabilities are transported, with the exception that other students, without disabilities, could be transported if this is agreed upon
- A provision to allow a parent or caregiver of a student with a disability to accompany the student on a trip
- Responsibilities when there are emergencies or other special circumstances such as adverse weather conditions
- An "escape clause" allowing the contract to be terminated if the service provided is not adequate.

The different provisions of the contract might be more or less complicated depending on the amount of service to be provided and depending on any laws or regulations already in force regarding such contracts. If one or more schools serve students with disabilities and they pay the cost of the contract, they should decide if and to what extent they are to be repaid by the parents or caretakers of the students.

Contracts may also specify low emission rates to meet national standards or even higher standards for air pollution. For example, in some cities a contract could specify that auto-rickshaws must use 4-stroke engines using compressed natural gas, rather than highly polluting 2-stroke engines.

10.3 One or more schools or families could contract with: (1) a single owner of a vehicle, (2) a taxi or auto-rickshaw company, (3) a public transit system, (4) another school, or (5) a large company providing school bus services (available in some countries)

(1) Contracting with a single owner or operator of a vehicle

This type of contract is usually simple to complete and may be very cost-effective. It involves making an agreement with a single person, who owns and operates his/her own vehicle, to purchase specialized and exclusive service for the student with a disability. The driver would provide the vehicle and transport the student with a disability for an agreed-upon price per trip.

If possible, the driver should also have a small set of approved substitute drivers in case of need for any reason.

Such a contract with a driver may be the lowest price option available to a school, a family, or a group of families with students with disabilities. In many cases this type of contract can be implemented faster than other options.

(2) Contracts with one or more companies operating taxis or other smaller vehicles (not as easy as (1), but may also be cost-effective)

A parent or caretaker may choose to make an agreement with a taxi company to purchase specialized and exclusive service for the student with a disability. The company would transport the student for an agreed upon price per trip, and provide the service requested.

If possible, the contract would list several drivers that had been screened and approved by the school, family or families.

Such a contract with a taxi company may be as dependable and as reasonably priced as the first option. It is likely that such a contract can be implemented quickly.

(3) Contracts with a public transportation system

Creating a contract with an existing public transit provider to purchase specialized service for students with disabilities may be an option. (Unless the student is accompanied by a trusted adult, it is usually not safe to put a younger student with special needs on public transit and have him/her ride with the general public. However, this depends on many different factors.) The existing public transit provider may be a government entity or it may be a private for-profit business that is under contract to a government transit authority. In either case, the public transit system would transport the students for an agreed upon price per trip or per kilometer and provide the service requested by the purchasing school, family, or group of families.

Since the contract is with a professional organization, one might hope that the service would be of a higher quality and more dependable than the options above. However, this option is not as personal as a contract with a specific owner or operator of a vehicle and there may not be the loyalty to the student that one might find when dealing with just one driver. On the other hand, in many cases there are professional standards that drivers in larger organizations are required to follow. Similarly, larger transportation organizations frequently have resources to deal with emergency situations, such as a broken vehicle, without interrupting service.

This option may also cost more than contracts with individual operators or taxi companies due to the extra costs of a bigger transit operation, or it could cost less because some larger organizations can achieve economies of scale. Due to customer demand, public transit system services for school transport may be restricted during certain times of day. Therefore, it may be necessary to adjust the school day of the student if this option is to be used.

(4) Contracts with another school or school system

If another nearby school district is already providing transportation for students with disabilities, sharing that service may be a good option to consider. This option is likely to provide a high level of service and safety since the provider already has experience in transporting children. However, costs may vary widely so special attention should be given to that factor.

Another option, available in limited circumstances, is for different districts or schools to enter into a ***co-operative arrangement*** where costs are shared. This allows districts, schools, and families to overcome some of the major capital costs involved in starting a new transportation operation. In this type of arrangement all of the participants own a portion of the operation and split all costs accordingly.

If the parent, family, or school has transportation options for their students with special needs then they should carefully weigh the pros and cons of each option.

(5) In some cases, school districts contract with large companies providing school bus services.

Service level indicators could be included, with rewards and penalties for exceeding or falling short of the performance standards required by contracts. Contracts might be for 3-5 years with an option to renew at the end of the initial contract period based upon negotiations between the parties. These larger and longer-term contracts open up consideration of possible ownership of vehicles and facilities by the school district itself, while the contractor performs the actual service delivery. Specialized advice should be sought on how to negotiate these and other large contracts.

Much of the material in sections 10 through 13 in this guide was contributed by Richard Schultze, a transportation professional with extensive experience in special education transport in the USA. Schultze is also the author of the case study from Bolivia.

Case study: JAPAN

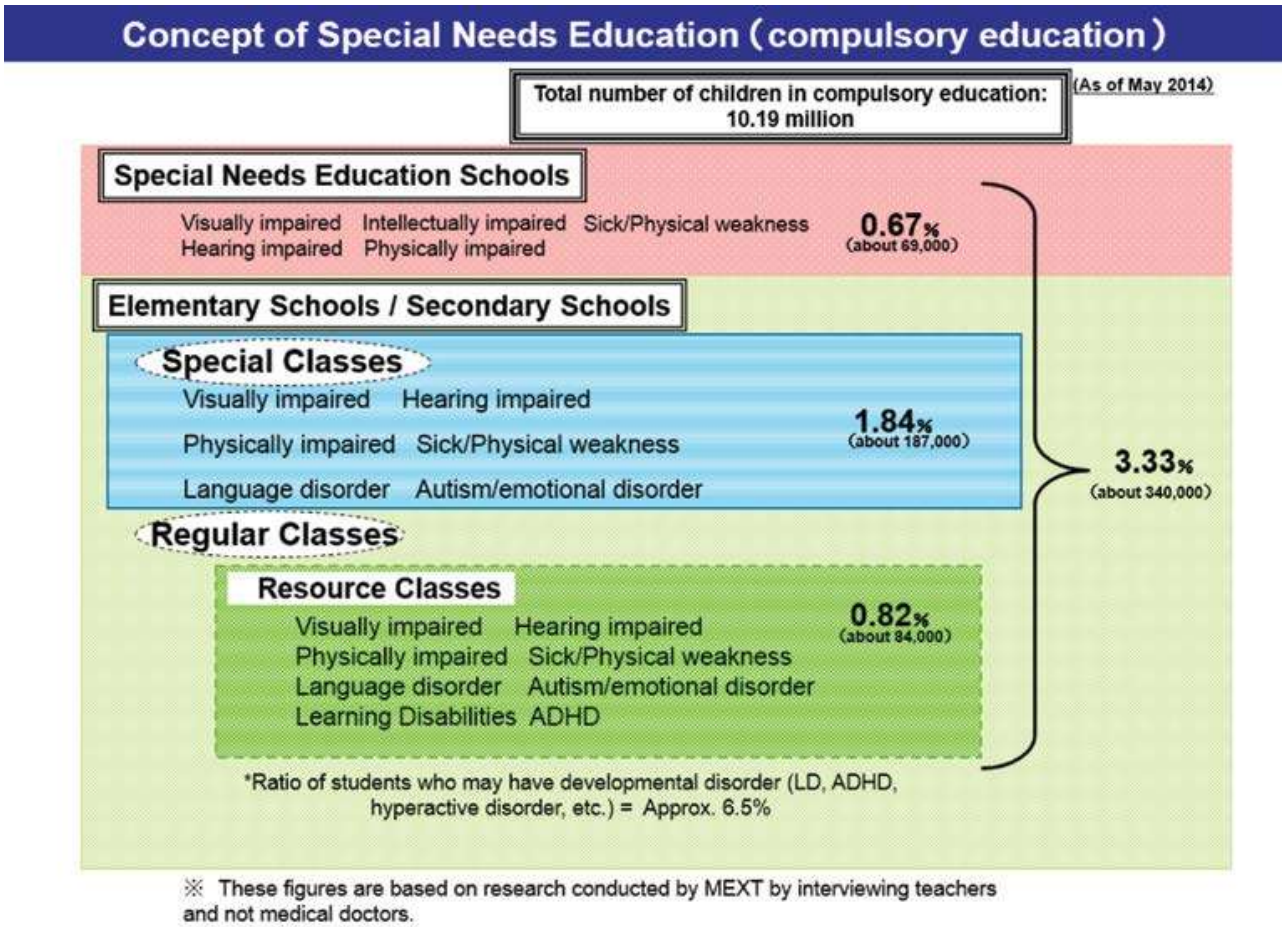
Different programs to address school transport needs

This case study is a summary of a research report originally prepared for AEI by Mr. Yoshito Dobashi. The summary is edited by Tom Rickert in consultation with the author. The full report is available by emailing Mr. Dobashi at <dobashi@lime.plala.or.jp>

Japan is a wealthy country that ranks in the top 11% of the world's nations in the UN's Human Development Index, in the quality of its overall transportation infrastructure, and in perceptions of honesty on the part of its government. Its 127 million people enjoy a 99% literacy rate. Ninety-three percent of Japanese live in urban areas, a remarkably high percentage that implies that the average distance to school may be less of a challenge in Japan than for parents and caregivers in most other countries.

Japanese students with special needs are placed in:

- Special schools for those with severe disabilities who cannot be accommodated in local schools (top box in the illustration below from Japan),
- Special classes in regular schools for part-time use by otherwise mainstreamed students (second box below),
- Regular classes with resource rooms (bottom box), and
- Regular classrooms.



These data imply that around 3.3% of Japanese school children are reported to need some level of special education at either special schools or regular schools. Of these students, 20% appear to be enrolled in special schools typically located at greater distance from their homes. Other students usually live closer to their local schools, including the 55% who attend special classes in regular schools as well as the 25% who go to resource classes in regular schools.

One of the main issues in Japan in accommodating the needs of children with disabilities is the small number of special needs education schools (1,096 in 2014) compared to regular schools (36,624 in FY2015). With the exception of Osaka prefecture, there are almost no local governments that have a positive policy for implementing inclusive education.

In addition, rural areas generally have a very small number of schools due to the declining birth rate in Japan. This results in longer commutes for children, thus imposing a greater transportation burden because schools are far away from home.

Transportation modes for special needs students

In the absence of national-level data, Mr. Dobashi provides this overview quoting results from an interview with Mr. E. Fujiwara, head teacher of the Tachikawa Deaf School (Jan. 15, 2016, via email).

(1) Commuting to regular schools to attend regular classes or resource classes

- Children with mild or minor disabilities tend to commute to school by themselves.
- Children who have relatively serious disabilities commute to school supported by their parents, business operators, volunteers, and so on. They commonly tend to go to special needs education schools. An exception is Osaka prefecture, where local governments have flexible policies for promoting inclusive education. For instance, in a school for students with physical disabilities in Tokyo, only two out of 50 students commuted to school by themselves, while in a school for the deaf in Osaka, 30 out of 50 students commuted to school by themselves, as far as Mr. Fujiwara could tell. It is difficult for most local governments to implement inclusive education due to political reasons and financial constraints.

(2) Commuting to special needs education schools (typical cases)

Schools for the deaf

- In grades 1 and 2, parents, relatives or business operators support their commute. After grades 2 and 3, they are trained to commute to school by themselves.
- In areas where there are school bus services, such as in Tokyo, parents, relatives or business operators escort children to bus stops where school bus service is available.
- However, children who have other disabilities, such as intellectual or mental disabilities, need to find their own means to commute to school depending on their situation.

Schools for the physically disabled

- Children with physical disabilities basically make an effort to commute to school by themselves, but in reality very few are able to do so. One of the reasons is that children with simple physical disabilities tend to go to a regular school rather than a special needs education school, and only children with multiple disabilities tend to go to schools for the physically disabled.
- School bus services in suburban and rural areas pick up children from parks or squares in specific areas. Some schools pick up children from each house, but this is rare.
- In urban areas, only children who require medical care are allowed to commute by car, since there is limited parking in urban areas.
- In rural areas, there are sufficient parking spaces, so there are no restrictions. On the other hand, as school buses need to pick up children from a wide area, children with disabilities prefer to commute by private car to save time.

Schools for the intellectually disabled

- Depending on their level of development, children with intellectual disabilities tend to use the bus or receive support to commute to school. In many cases, they are trained to commute to school by themselves.
- The same applies to commutes by bus.

A survey in Sapporo City (2011) indicates that nearly three-fourths of special needs children rely on family, relatives, volunteers, or commercial services to get to schools, using means such as a private car, school bus, or public transportation. An earlier survey in Hokkaido, of which Sapporo is a part, found that most transportation service is provided by parents using their private cars. However, as adults age, many find it increasingly difficult to transfer children with disabilities to and from a wheelchair or transport vehicle. The caregivers can themselves suffer from back injuries in the process of transporting the children!

The situation with school buses also leads to some concerns even in urban areas with shorter trips, as some trips involve many pickups and students become tired. While rural areas benefit from a national commitment to rural school bus service and subsidies to support education in rural areas, the actual situation is still difficult. A case study in Gunma Prefecture summarizes the situation as follows: "As each special needs education school covers a wide area, the length of time children ride a school bus tends to become long. Moreover, since many children's houses are not located along school bus routes, many parents drive their own cars to take their children to school. In some cases, they take the highway and drive some 70 km." (email interview with D. Sawada, director of ECOMO Foundation, Nov. 4, 2015)

How special needs transportation is funded in Japan ($1US = approx. 100 yen)

In the main, funding flows from the national government in the form of (1) subsidies to local governments and (2) direct financial support to parents and caregivers, as depicted in the graphic on the next page from Japan. These funds support transportation to schools in whole or in part.

The following three major sources of transportation funding have been identified:

(1) Subsidies to support special needs education from the Ministry of Education, Culture, Sports, Science & Technology (MEXT).

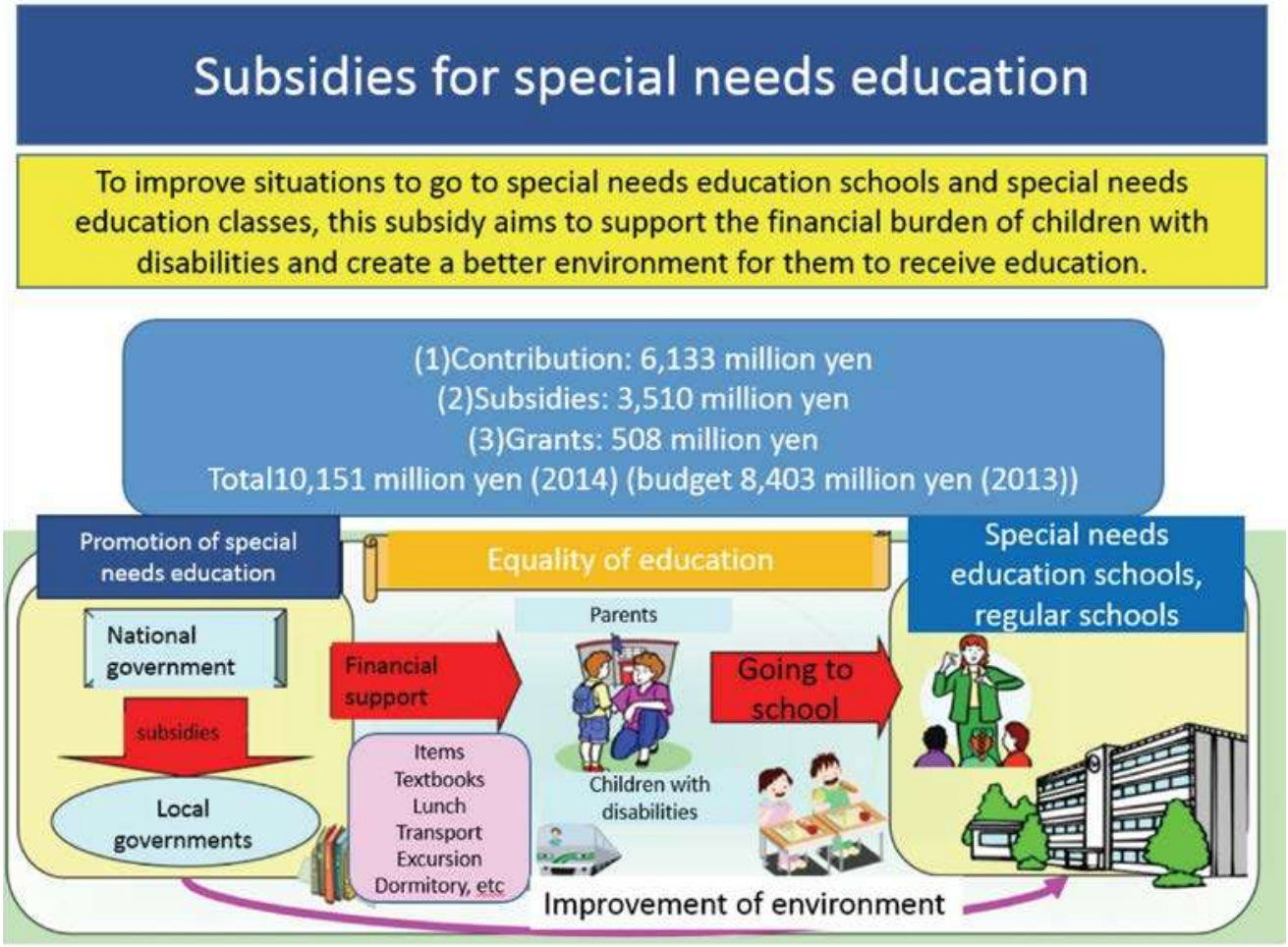
The national government subsidizes 100% of special education classes. In other regards, both local government and parent contributions reflect household income and grade level as students pass to higher levels of schooling. (For example, a higher-income family would pay all high school costs while children in elementary school from a middle income family would be subsidized 50% by national funds and 50% by local funds). See Section 8.3 for further data.

Transportation subsidies apply for *the most economical routes of public transportation, private car, or boat*. They also apply to *fees incurred for public or private buses that are contracted*. The transportation fee is calculated based on the individual situation of each pupil in terms of age, disability level, safety, and other issues.

The subsidy may cover round-trip home-to-school fuel costs approved by the school principal, or a travel fee if the student is lodged in a dormitory at a distance, or in cases where school bus services are not available. The subsidy may be used for the repair of bicycles if used by the student to commute to school. The subsidy is based on actual costs, so discount passes for students with disabilities are strongly recommended.

(2) Individual benefits from the budget of the national Ministry of Health, Labour and Welfare (MHLW) based on Japan's "Services and Supports for Persons with Disabilities Act."

Individual benefits include support for persons with (1) visual disabilities, (2) intellectual disabilities, and (3) severe disabilities. While these benefits do not support commutes to school



they may in some cases support services for escorting children from school to after-school day-care facilities

(3) **Community Life Support Service, also from the MHLW and also based on the "Service and Supports for Persons with Disabilities Act."** These funds are implemented by local governments.

The Community Life Support funds may require being matched to some degree by local and prefectural (district) funds. They include "movement support" to encourage independent living. This support may at times assist individuals or groups to use local or community bus services, including commuting to school or related activities. The overall Community Life Support Service funds comes to US$2.1 billion annually, but no data is available on how many of the 140,000 beneficiaries in a given month use these services to commute to school. More than nine out of ten local governments implement this "movement support service" for persons with disabilities, with significant variation among the different governments.

In general, families who qualify for this support enter into a contract with one or more commercial transport operators certified by the local government based on a fee schedule set by each local government. Families typically pay 10% of the contract cost (but there is no cost for low-income families). The local government pays the remainder to the commercial transport operators. While most local governments use these funds for school commute service, they usually apply conditions such as (1) parents are unable to escort their children due to being sick or hospitalized (81%), (2) the funds are used so that children can learn commute routes (33%), or (3) due to the working hours of the parents

(24%). Thus it is clear that whether or not children can receive these benefits heavily depends on the discretion of local governments.

Researchers at Japan's Hyogo Institute of Assistive Technology, interviewed by Dr. H. Kitagawa, noted the following: (interview via email with Mr. Dobashi, Jan. 7, 2016)

> (Researcher A) "Most local governments contract out to business operators. In the case of Sakai city, the local government contracts out its transportation operation to a business operator as part of its special needs education program. However, local governments still tend to purchase buses or cars. In Sakai city, there are many good programs for child development support and after-school day-care facilities, but ironically, this is frequently making return school buses empty, and creating an issue for criticism."
>
> (Researcher B) "If local governments have a transportation section in their organization, transportation can be managed by that section. If local governments do not have a transportation section, they may contract out. In Kakogawa city, the local government used to manage bus services, including bus drivers' salaries, but have handed over the operation to a private company. Although the city still bears the maintenance cost for buses, it succeeded in reducing (costs), as the drivers' salaries have been… reduced. Normally, the buses change routes every school year to accommodate new pupils/students."

In reviewing other research on school transport for children with disabilities in Japan, Mr. Dobashi cites evidence that commute patterns often vary, with more children taking a bus to school than for the return trip home, due to transport to day care. In addition, support is needed from homes to school bus stops. In travel training for children to use the bus, it was noted that instruction from bus drivers and assistants seemed to be more effective than from teachers or parents.

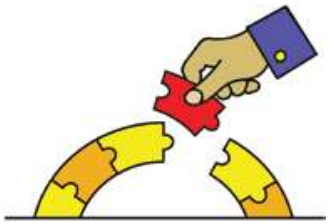
A recent study on the state of commuting to special needs education schools in Japan has concluded that many of the issues in commuting to such schools have been resolved, due to significant efforts that have been made to improve the situation. However, there is still much to be addressed to achieve the goal of creating a better environment for children with disabilities.

Summing up, there is a lack of comprehensive information that focuses on school commutes by children with disabilities in Japan. Clearly, the main burden in supporting children to commute to school is borne by family members. Local governments play a critical role in deciding whether or not public services are applicable or not. As a result, there are wide disparities.

Variations in transportation subsidies in Japan by age and family income are presented in Section 8.3 on Sources of Funding. The reader is also invited to see the case studies from India and Costa Rica.

This case study summarizes a research report prepared by Yoshito Dobashi in Japan, titled "Current Situation of Children with Disabilities in Commuting to School in Japan," which was originally sent to AEI in February 2016. Mr. Dobashi worked with the Japan International Cooperation Agency (JICA). He recently stepped down to devote himself full-time to issues of disability. Currently, he is a member of the International Committee of the Japan Association of Inclusive Society (JAIS). A full list of references used in his study is available from Mr. Dobashi.

SECTION 11. OPERATING YOUR OWN VEHICLES



Purpose of this section: *To discuss key issues when one or more schools operate their own vehicles.*

11.1 Introduction

Sections 5-9 of this guide discussed vehicle modes and service models to transport children with disabilities to and from school, including inputs from the MSU-AEI electronic survey, structured interviews with heads of schools, case studies, and other input on this topic. Section 10 discussed contracting with others to provide transportation for students with disabilities. In much of the world, those schools that can afford one or more vehicles to transport children with disabilities often prefer to operate their own vehicles. Often, this is deemed to be the best option because schools then control the use of the vehicles. This section introduces principles and issues relating to vehicle procurement, accessibility features, and maintenance of school vehicles.

11.2 Trade-offs

Since schools that choose to obtain their own vehicles have control over when they are used, they can transport students outside of the typical service times if that is what is best for the student. For example, some students with special needs cannot tolerate a full day of school. Alternatively, if a student becomes ill and the school controls the vehicles, they can decide to take the student home or to emergency medical care. Especially in smaller schools, operating their own transportation allows schools to change the school schedule to accommodate local issues which could range from weather to illness of a teacher.

While schools gain the benefits of flexibility and control by owning their own vehicles, there are new responsibilities involved with this option. School personnel must not only be educators but must also perform all the roles associated with transportation. The learning curve to achieve an effective transportation operation can be significant. The educator with this responsibility will have to learn the basic principles of providing transportation, including tasks like procuring and operating vehicles, finding proper maintenance and fueling, and obtaining spare parts for these vehicles. They will also have to plan routes and schedules as well as a variety of personnel-related tasks like selecting and training the drivers and other personnel involved in their operation.

11.3 What types of vehicles could be used to transport students with disabilities?

In many parts of the world, schools serving children with disabilities tend to rely on donated vehicles. As discussed in Section 5.3, donors and recipients should make sure that the vehicles are appropriate for the needs of the school and that the vehicles are in good condition, with spare parts available locally. It is important that donated vehicles either be procured locally or imported by an agency experienced with shipping and with a detailed knowledge of and experience with the customs requirements of the country receiving the vehicles.

There are many types of vehicles that are used to transport students with disabilities. These include different versions of the formal "yellow school bus" used in many countries and other small and large buses, vans, minivans, sedans, and trucks with seating in the back. They also include motorized "three wheelers" such as auto-rickshaws as well as motorcycles, scooters, bicycles, human powered three-wheeled vehicles, and the use of animal traction to pull carts.

Several of the case studies in this guide discuss agencies that operate their own vehicles. For more in-depth discussion of issues of vehicle procurement and operations, go to the section on "vehicles, wheelchair safety, maintenance, fuel and facilities," pages 33-40 at <www.globalride-sf.org/paratransit/Guide.pdf>

The most important characteristics that determine which vehicle to use are:

- Purchase or lease costs
- Availability of financing
- Availability of suitable donated vehicles and their condition (if not purchased new)
- Fuel economy
- Cost and availability of local maintenance
- Availability of accessibility and comfort features (or the ability to install such features)
- Seating capacity (how many students are expected to ride the vehicle at the same time)
- Whether service is in-town or rural
- Operating environment (paved, dirt, good or bad roads, stop and go, rural service)
- Local regulations for vehicle fleets
- Traffic laws

Key performance indicators can be utilized to help determine vehicle choice and to provide a good "evidence base" for future fundraising.

Vehicle size and design is especially important. For example, small three-wheelers can access smaller roads and narrower passages where larger vehicles are unable to operate. Larger vehicles are often best for longer trips, and certainly when many students are picked up and dropped off at single locations.

Issues of pollution are very important in every country. For example, when purchasing three-wheelers it is best to procure vehicles using fuel-efficient 4-stroke engines that cause less pollution than do highly-polluting 2-stroke engines. Compressed natural gas (CNG) is available in some cities for even more efficient operation.

11.4 What accessibility features should be on the vehicles used to transport students with disabilities?

Ideally, there are certain accessibility features that should be on any vehicle used to transport students with disabilities. However, these may not all be possible in your country. Which features are chosen or installed will depend on local circumstances like the type of vehicles that are available, the size and internal layout of a vehicle, the potential for retrofitting it, the availability of certain accessibility features that can be purchased, and available funding.

Accessibility features, whether operated manually or automatically, could include:

- Wheelchair lift or built-in ramps or manual portable folding ramps
- Low floors or a kneeling feature
- Wheelchair/scooter spaces
- Wheelchair tie-downs and tie-down tracks
- Special seat belts for wheelchair users
- Seat belts (or other restraint systems) for other children with disabilities
- Hand rails
- Wide doors and steps
- Special signage and markers on steps
- Special priority seating near the front of a bus
- A place to store manual folding wheelchairs or wheelchair trays
- Audio announcement of stops
- Padding on hard surfaces and seat edges

One of the most useful accessibility features is a wheelchair lift, to allow the wheelchair and rider to move between street or ground level and the floor level of the bus. Such lifts can be very expensive to procure, install and maintain. Especially in vehicles where the floor is close to ground level, ramps, and hooks or spaces to attach a ramp, can be installed. Portable ramps can be stored in the vehicle if not mounted on the vehicle itself. Most children with disabilities do not require or use a wheelchair. If a wheelchair is needed, it is most often manual and in most cases can be folded. Except for wealthier countries, few students with disabilities use electric wheelchairs. The manual wheelchairs will usually fold up and can be stored on the vehicle if necessary if the student can *safely* transfer to a regular seat.

In situations where lack of funds makes it impossible to install wheelchair lifts or ramps, the tendency is to carry students with severe disabilities onto and off the vehicle, with the school often supplying a wheelchair upon arrival at the school. Many wheelchairs are not sturdy enough or are missing key safety features necessary for transport. The transfer practice is even recommended in wealthier areas for some students because the basic safety features of the vehicle were designed to serve walking students. Wheelchairs, though necessary and very safe for many students, often require compromises in vehicle safety design. ***Where it is necessary and permissible to transfer a student, the driver or attendant should be trained in proper lift and transfer techniques to avoid injury to themselves or the student.***

Ideally, vehicles should have special tie-down spots for wheelchairs, with accompanying securement devices that keep the wheelchair in place and that secure the student to the wheelchair during transport. It is not safe to use the same seat belt to secure the wheelchair and the rider at the same time, as that could crush the rider. In other words, ***wheelchair securement is a separate matter from securing students in a wheelchair***. Two sets of securements are needed, with safety belts for the rider and securements for the wheelchair. When securing a wheelchair, special care should be taken to ensure these two systems are functioning properly both individually and together. The two systems should not cancel each other out, for example by crossing straps. Since students in wheelchairs are frequently very fragile and unable to adjust tie-downs themselves, ***the person securing the wheelchair must verify the straps are secure and functioning properly in order to not cause harm to the student.***

Some students with disabilities may use other mobility devices such as walkers, canes, crutches, or strollers. A space should be provided on the vehicle to securely store these devices.

If at all possible, all students with disabilities should have seat belts to secure them during transport.

Some students may bring medicines or lunch, which must be secured during transport.

If possible, and depending on the climate, there should be working air conditioning and/or heat on the vehicle. Some students with disabilities are endangered by very high or low temperatures. The filters on both heating and air conditioning may also help the students' health by filtering the air.

11.5 How should the vehicles be maintained?

The vehicles used to transport students with disabilities must be kept clean. All accessibility and safety features should be frequently inspected and maintained to ensure they are in working order.

The interiors of the vehicles should be cleaned each morning and afternoon in order to remove any trash or food that may be ingested by some of the children (especially those with pica), to reduce dust and dirt in the vehicle, to ensure a better breathing environment, and to eliminate an environment in which insects may cause disease. If there are incidents where a student with a disability may urinate, defecate, vomit, bleed or otherwise leave body fluids on the vehicle's seats, floors or equipment, the situation should be quickly cleaned up and not allowed to contaminate other students or the driver.

All accessibility features need to be checked daily and maintained according to a formal written maintenance procedure, with any needed repairs made quickly. The accessibility features need to be reliable and safe, since students with disabilities depend upon them daily.

Before the driver accepts responsibility for the vehicle and leaves the storage yard, the driver needs to conduct a pre-trip vehicle inspection. It is recommended that drivers use a pre-printed vehicle checklist. If certain pieces of equipment do not function, then the vehicle should be deemed unsafe or unworthy of passenger transport and should be taken out of service to perform the needed maintenance. The driver should then request another vehicle. Clearly, this is impossible for many schools with only a single vehicle, and such schools may wish to have an agreement in place with a local transportation service or other vehicle owners to provide emergency service when the school vehicle is not operable.

Drivers also need to conduct a post-trip inspection going over many of the same points as the pre-trip. In addition to conducting a child check to assure no students remain on the bus, and checking for student possessions that might have been left, attention should be paid to any changes to vehicle conditions that might have occurred during the day. Special attention should be given to issues that might have been caused by an accident, road damage, weather damage, passenger actions, or even normal wear and tear.

Transporters should always have a scheduled maintenance plan designed to keep vehicles in good working condition. The plan should try to anticipate normal operational problems such as the need to fix a vehicle which breaks down en-route and the impact maintenance may have on operational needs. Sometimes it may be necessary to transfer students to another vehicle. Mechanical staff should be acquainted with the proper way to perform or assist in such a situation.

There are three types of maintenance:

- Servicing (cleaning and fueling) on a daily basis,
- Preventive maintenance and warranty work on a scheduled interval basis, and
- Accident and road-call response and repair, on a random as-needed basis.

Preventive maintenance intervals are recommended by the vehicle manufacturer and might be adjusted locally based on experience and conditions. The preventive maintenance is grouped according to the types of maintenance to be done and on the system to be maintained. An example of this grouping is where some maintenance is conducted every 6,000-10,000 vehicle kilometers (approximately 4,000-6,000 miles), and other maintenance is performed at longer intervals. This is often called the "ABC" system. The A maintenance might be for oil change, oil filter and a full safety inspection, to occur every 6,000-10,000 km; the B maintenance would include oil change, oil filter, fuel filter change, lubrication of all moving parts and a full safety inspection, every 25,000 km; and the C maintenance would be for all fluids, spark plugs, coolants and a full safety inspection, every 50,000 km.

Parts and systems that should be subject to interval-based preventive maintenance include: accessibility features, filters (air, oil, fuel), coolants, air-conditioning and heating, hoses, brakes, drive belt, exhaust systems, transmission fluids, tires, electrical, ignition, spark plugs, alternators, steering and suspension, wheel alignment, and shock absorbers.

Any wheelchair lifts or any kneeling feature should be cycled and tested daily.

Realistically, a fleet can never be perfectly maintained. The challenge is to provide the best maintenance with the resources that are available. Therefore, the maintenance plan should try to *anticipate* problems rather than just reacting to them. Drivers should be encouraged to report even the slightest problem. These "minor" issues might really be signs of larger issues which can be addressed before they affect safety or service.

Real or perceived safety problems, accessibility equipment that is not working correctly, inside and outside cleanliness, inside odors, working air conditioning and heating, working seat belts, and clean and intact seats are all matters that should be addressed. Regardless of the size of the vehicle fleet, ***a formal written maintenance plan should be implemented*** so that maintenance concerns will not be overlooked and so that adequate maintenance records can be kept.

Disclaimer: Always follow manufacturer's instructions when using any equipment related to student transport. Follow all applicable laws and regulations when procuring, servicing, maintaining, and disposing of vehicles and equipment.

Case study: INDIA

School transport subsidies in Delhi and in Tripura State

A Report by Abha Negi, the Global Forum for Empowerment

Introduction

Globally it is estimated that 70% of children with disabilities can attend regular schools provided the environment is designed to be accessible and the institution is willing to accommodate them. The goal should be to enable all children to have full participation in the development of their community. Meeting this goal of inclusion requires school buildings and community-based services, as well as transportation, to be accessible to all members of the community without discrimination.

India's disabled population was reported to increase by 22.4% between 2001 and 2011. Seventy-one percent of persons with disabilities in India are estimated to live in rural areas.

UNICEF's Report on the Status of Disability in India 2000 states that there are around 30 million children in India with some form of disability. The Sixth All-India Educational Survey (NCERT, 1998) reports that of India's 200 million school-aged children (6–14 years), 20 million require special needs education. While the national average for gross enrolment in school is over 90 per cent, it is estimated that less than five per cent of children with disabilities are in school.

In the past few years, the focus on children with disabilities has resulted in greater awareness and increased sensitivity towards their needs. The launch of the District Primary Education Programme in 1994 provided further impetus to existing efforts. The Equal Opportunities and Rights of Persons with Disabilities Act of 1995 was comprehensive breakthrough legislation that provided for education and economic rehabilitation of persons with disabilities. This legislation states that free education for children with disabilities up to the age of 18 years must be provided in an appropriate environment. The government launched the Sarva Shiksha Abhiyan initiative (Education for All, or SSA) in 2000-2001. This initiative proposes to implement the 'universalization of elementary education' with a focus on providing quality elementary education to all children aged 6–14 years. Inclusive education is an integral component of this program, with the goal of making 'education for all' a reality. The Right to Education Act, with policy provisions for children with disabilities, was enacted in 2009.

Special schools

Children with disabilities are increasingly welcomed into regular schools per government initiatives. However, children with severe or multiple disabilities who have difficulties in coping with regular schools are referred to special schools. A "40% level of disability" of any type is a benchmark for identification and certification for admission in these special schools.

Currently there are more than 3,000 such schools across the country, including:

- 900 schools for children with hearing impairments
- 400 schools for children with visual impairments
- 1,000 schools for children with intellectual disabilities
- 700 schools for children with physical disabilities

Inclusive schools

Keeping in mind the large number of children whose needs must be addressed and the limited resources available, the best option is to promote inclusive education. However, inclusive education is still a developing concept in India. Inclusive education is possible only with appropriately trained teachers, accessible school buildings, child-friendly curricula, appropriate teaching methodologies and evaluation methods, and developed partnerships with families and communities along with a hassle-free commute to and from school.

Currently in India:

- Central and state governments have taken a number of initiatives to improve the enrolment, retention and achievement of children with disabilities. There is a need to establish interlinks and collaborations among various organizations to prevent overlapping, duplication and contradictions in program implementation.

- Most services for children with disabilities are concentrated in big cities or close to district centers. The majority of children with disabilities who live in rural areas do not benefit from these services.

- There are comprehensive steps being taken to ensure that children with disabilities can reach the schools.

Concrete steps have been taken by the government to promote inclusive education for children with disabilities. These approaches currently include two initiatives known as SSA and IEDC.

- ***SSA:*** The Sarva Shiksha Abhiyan (the Education for All Movement or SSA) was initiated in 1994 with the aim of providing universal elementary education. It currently operates in 271 school districts in India. One performance indicator is that students with special needs must compose at least 10% of total enrolment.

- ***IEDC:*** The Integrated Education for Disabled Children (IEDC) Program receives special emphasis under the District Primary Education Program. This initiative was started in 1998 for children with disabilities in primary schools. The program supports activities such as community mobilization and early detection services, in-service teacher training, resource support, educational aids and appliances, and accessible school design. Children with learning disabilities get special care in primary schools. In other districts, the same IEDC activities will be supported by Sarva Shiksha Abhiyan (SSA).

TRANSPORT-TO-SCHOOL CASE STUDIES

1. From the State of Tripura

Introduction

The State of Tripura in northeast India has a population of 3.7 million, of whom nearly 60,000 have a disability. Literacy is high. Tripura has no funded program for provision of aids and appliances to assist persons with disabilities. Rather, the national government, via its Assistance to Disabled Persons Program, distributes funds to the State of Tripura for implementation.

Education and transportation to schools

Accessible transportation is not available in Tripura state. A free bus pass is usually provided to persons with disabilities using state-operated buses.

According to the Centre for Internet & Society, students with disabilities in grades 1 through 8 are provided with nominal scholarship aid, ranging from 60 to 95 rupees per month depending on the nature of one's disability, while students with disabilities in grade 9 to university level receive a maximum of 240 Indian rupees per month (US$1.00=68 Indian rupees as of January 2017). These very limited funds can be used at the discretion of the user, and thus could be applied to transportation costs.

In 2009, the Tripura government introduced a home-based education program for children with disabilities who were unable to attend schools, in

lieu of governmental measures to train teachers and equip schools with adequate infrastructure for disabled students.

2. From Delhi city government

Introduction to special needs education in Delhi

The capital district of Delhi has a population of 16 million. School buildings are generally not accessible although the government has initiated a program to address this concern. According to Delhi's Education Department, support for inclusive education includes modified toilets, ramps and railings, accessible buildings and laboratories, and Braille and other text books. Training is available for general as well as special education teachers. Provision is also made for counseling programs, attendant services, and implementation of appropriate guidelines for school examination and evaluation procedures. Assessment services are available for the provision of aids and appliances.

Transport-related financial assistance for children with special needs in Delhi

A total of 20,700 children with special needs are studying in grades 1 through 12 in schools operated by or receiving aid from the government and local bodies in Delhi. Of this number, 13,660 children are in grades 1 through 8.

There is limited program funding for (1) escort of students to school and (2) transportation costs to and from school. Escort services can be provided by the parents themselves or the parents can hire someone at their discretion.

(1) Escort funds

SSA funds: 7,639 children with special needs, under covered categories of disabilities, received an escort subsidy of 250 Indian rupees per month (approx. US$3.75) for ten months during 2015-16.

IEDC funds: During the same period, 7,054 children with special needs received a similar subsidy approved by the Ministry of Human Resource Development of the national government. The funds are disbursed by the heads of school directly to parents or other individuals who escort these children.

(2) Transportation funds

SSA funds: In addition, a transportation allowance of 250 Indian rupees per month for ten months was approved by the national government for 2,173 children with defined categories of disability in Delhi for the 2016-17 academic year.

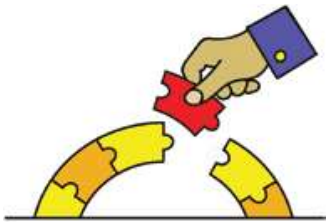
Children with special needs in grades 9 through 12 (in government, government-aided, and local schools) are also receiving transport and escort allowances under the ***Inclusive Education of Disabled at Secondary Stage*** program. The escort and transport subsidy came to 300 rupees per month for 10 months during 2015-16. 544 children with defined categories of disability received an escort allowance and 2,455 were covered by transport allowances during 2015-16. Attempts by the Delhi government to establish a higher level of escort and transport subsidies were not successful.

The dropout rate of children with special needs in inclusive schools in India is around 10% but due to new admissions the overall enrolment of special-needs children has been increasing every year. The attendance of these children in inclusive schools is around 60-70% but for those with severe disabilities the attendance is lower, around 40-50%.

Despite the differences in geography and access to resources between the national capital Delhi and the state of Tripura, the two states provide rather similar access to education to children with disabilities. On the whole, both the state of Tripura and Delhi are following similar policies in subsidizing transport facilities by way of modest monetary assistance. Unless conscious steps are taken by the national and state governments, in tandem with each other, to provide transport to children with disabilities, we cannot hope to see education for all become a reality.

See the Japan and Costa Rica case studies for more examples of transport subsidies

SECTION 12. POLICIES AND PROCEDURES FOR SCHOOL VEHICLE OPERATORS



Purpose of this section: *To discuss policies and procedures that are required when students with disabilities are transported to and from school*

12.1 Introduction

Section 10 discussed contracting with others to operate school transportation and Section 11 discussed schools which operate their own vehicles. This section discusses policies and procedures for transporting students with disabilities. These procedures need to be reviewed and communicated to parents, students, transport providers, teachers and other personnel at schools. It may also be necessary to cross-train personnel on how to follow these procedures when need arises. Necessary policies and procedures should be written down and posted.

12.2 What vehicle policies and procedures should be in place?

A good transportation system should have a range of written policies and procedures in place before transporting students with disabilities.

Disclaimer: This is merely an introduction to some, but not all, necessary policies and procedures relative to school transport of students with disabilities. Policies and procedures may vary from one situation to another and practitioners should follow all laws, regulations, and best practices.

(1) ***Pick-up and drop-off times and locations***

Changes to pick-up and drop-off locations should be coordinated between the school and the families. Younger students with disabilities should not be given the responsibility to request different locations and different times.

Some students with disabilities will require handoffs at the home or school. For these students it may be necessary to pass physical custody to the receiving person. That is, the driver or attendant would hold the student's hand until the person receiving the student takes the student by the hand. Some students may tend to wander off, run away, or lose their way and become confused if there is not a regular designated and responsible person to meet them. Therefore, it is imperative that drivers and site staff have documentation identifying any students who might have this tendency so that they can support the student appropriately.

(2) ***Boarding and exiting from the vehicle***

There need to be policies and procedures and training on the safe loading and unloading of students with disabilities. The most dangerous area for students is in the loading and unloading area. Procedures and training should ensure staff, volunteers, and students are aware of how to act in this dangerous area. Other risky areas which should require written procedures are lift and ramp operation, securement of wheelchairs, the use of seat belts, and safe operation of the vehicle.

Some students with disabilities may use manual or electric wheelchairs. Where it is possible and *appropriate* to transfer a student to a regular seat, efforts should be made to do so. This transfer should only be performed if those performing the transfer are physically capable of doing it without injury and if they have been trained properly. Additionally, not every student who uses a wheelchair can or should be transferred. This is usually a medical decision or a decision of a physical therapist assigned to the student. In every case there must be documentation to instruct all involved on the safe and proper procedure. Manual wheelchairs will usually fold up and may be able to be stored on the vehicle if necessary. Often wheelchairs provide support for students with weak backs or other medical conditions. If wheelchairs are to be transported, the vehicle should have special tie-down spots designated for wheelchairs, with accompanying securement devices that keep the wheelchair in place and that secure the student to the wheelchair during transport. It is not safe to use a seat belt to secure both the wheelchair and the rider. That is, the wheelchair should be secured with safety restraints that meet relevant specifications. A separate set of restraints should secure the student to the wheelchair.

(3) ***Length of trip policies***

Students with severe disabilities, for whom a lengthy ride may present a health or safety problem, should be on the vehicle as short a time as possible. For these students, rides should be as direct as feasible, given the need to accommodate other students and routing considerations. With some students, especially those that have disabilities which make their condition fragile, trip length should be minimized when on bumpy roads or subjected to stop-and-go traffic. Some students have bladder or bowel limitations and are prone to accidents if on the vehicle too long. Revising route length or direction may be necessary to accommodate these students.

(4) ***Controlling behavior***

The driver, or an attendant if available, may have to implement special seating arrangements to separate students that aggravate or upset other students. Conversely, some students need to sit next to their friends and may become agitated when separated. Other students, typically students with autism, can use their seating arrangements during transportation to help them develop essential social skills. Consult relevant materials to learn more about these topics.

(5) ***Emergencies on board the vehicle***

There should be procedures to deal properly with emergencies such as fire, accidents, severe illness, injury, seizures, choking, and extreme behaviors. These procedures may include instructions on the use of first aid, CPR, or specific actions required by either the student's disability or the vehicle's operation. Ideally, the driver and attendant should have cell phones in order to contact emergency response centers and to contact the school if there are problems. The school should maintain contact numbers for the families in case of an emergency. The school should have accessible phones that will be answered in the event of an emergency.

(6) ***Handling special needs of individual students***

Liquids and snacks: Some students with disabilities may need to drink liquids (to stay hydrated) or eat snacks (due to low blood sugar). Such needs should be cleared by the parents and school, and could include the need for an assigned and appropriately trained aide to provide liquids or food for children with diabetes, asthma, or other conditions which may require medication, or other special dietary ex-

ceptions. With those exceptions, and no matter how well-intentioned, drivers or attendants should not give a student with a disability anything to drink or eat during normal transport to and from school. Neither should they bring special treats for the students and give them to consume on the vehicle or later at school or at home. Such caution is warranted because students who are eating or drinking during transport may choke. Additionally, many students have special diet restrictions which could be compromised by the unanticipated foods or drinks. Finally, food – especially sugary treats, which many mistakenly use to reward good behavior – can modify student behaviors and make student behaviors much more difficult for those who next must care for that student. It is for this final reason that food rewards by classroom staff are also to be discouraged.

Cleanup of liquid and solid waste: There need to be policies and procedures in place for quickly and safely cleaning up biohazards and biofluids, accidental toileting, and insects such as lice and fleas.

Storage on board vehicles: Some students take ***medications***. It is important that students with disabilities not carry their own medications. The family should hand off the medications to the driver or attendant in a sealed package to ensure they are not tampered with. The driver or attendant will secure the medications during transport, and then hand them off, still sealed, to school personnel. The reverse is true during the trip home.

Many students with disabilities will bring things with them during their transport. Some of the items ***provide security and comfort*** during the trip, including toys, cuddly items, things to do during travel, blankets, and pillows. Students may also bring things ***for school itself***, such as dolls, art work, magazines, favorite toys, lunch pails, extra clothing (for changing at school), snacks, gifts for friends and teachers, and homework. It is important that the driver and attendant find places to securely store these items when necessary, and to keep track of them in order that the student will have them upon leaving the vehicle. Children can quickly become disruptive and uncooperative if they have lost possessions, or if someone has stolen or borrowed their things on the vehicle. Therefore, a procedure to ensure students maintain their possessions should be established and enforced.

Some students with disabilities may need ***special mobility or learning devices*** at school or in transport. Students may need walkers, canes or crutches. Some may bring special learning devices such as Braille typewriters, hearing aids, tablets, laptop computers, communication devices, etc. Some students may require portable oxygen. These items need to be secured during transport and retrieved upon arrival at school or home.

Students left behind: Students may fall asleep during the bus ride. It is essential that the driver and/or attendant perform a complete and thorough check ***every time*** a set of students is delivered. Since many students with disabilities are unable to remove their own securements and exit the bus safely, failure to perform this child check will endanger student lives. Regardless of the drivers' opinions about this procedure, schools, transport managers, and parents should insist it be performed.

Go to Appendix 2 for a sample form to provide relevant information on specific students for use by schools, drivers, and attendants.

For more information on policies and procedures, go to "Access & Mobility, a Guide for Transporting Students with Disabilities in California," 2nd edition, published by the California Association of School Transportation Officials (CASTO), 2010. Contact <pmeslin@nmusd.us>

Case study: DOMINICAN REPUBLIC

Hermanas Mirabal Province

by Dr. Gretel Silvestre

Introduction

This study discusses the Center for Diversity Services (Centro de Atención a la Diversidad, or "CAD") serving the municipalities of Salcedo, Villa Tapia, and Tenares in Hermanas Mirabal province.



Motorcycles are a dominant mode of school transport in the Dominican Republic. - Photo courtesy of the author.

The Dominican Republic has a population of 9.5 million, of whom 120,000 live in Hermanas Mirabal. The major transport modes are operated by associations of drivers or private companies and include "carros públicos" (taxis), "motoconchos" (two-wheeled motorcycles carrying up to four passengers), and small minibuses locally called "voladoras." There are also some government-operated regular buses. The capital city of Santo Domingo has two accessible underground metro lines. The country is a signatory of the United Nations Convention on the Rights of Persons with Disabilities (2009), following up with its own disability legislation (2013) which includes several sections guaranteeing accessible transport for persons with disabilities. However, regulations have yet to be put in place to assure compliance with this legislation.

Several large buses were acquired in 2015 and put into service for transport of students to regular public schools located in areas of dangerous traffic, but these lacked accessibility features in spite of the disability legislation. In addition, five smaller buses were acquired for use with special education schools.

The Dominican Republic has some 11,500 schools, of which 4,200 are private and the remainder are public. The public schools are constructed with funds from the Education Ministry, which is also responsible for teacher salaries and related costs, but ***not*** for related transportation. By law, all public schools are required to accept children with disabilities, even though they may not have qualified teachers nor accessible facilities. Accessible design requirements were only put into place in 2012.

The Center for Diversity Services in Hermanas Mirabal

Taking these limitations into consideration, including the very recent initiation of professional preparation for special education teachers, the model used for the Center for Diversity Services (CAD) in Hermanas Mirabal province is a success story.

The CAD functions as a multi-purpose office subsidized by the national Ministry of Education and different non-governmental agencies through the Technical Office of the province. This mixed funding model creates a difference between the Hermanas Mirabal CAD and similar institutions elsewhere, which in turn appears to lend itself to more effective use of transportation. The Center's purpose is to promote the social inclusion of chil-

dren with disabilities while taking advantage of the curriculum provided to these children in their local schools in the three main towns within the province. The CAD provides teams which assess the situation in each local school and evaluate each child. The CAD also provides home visits and refers children to local resources for therapy. Children with disabilities are also able to participate in extra-curricular activities with children without disabilities.

A distinguishing feature of this CAD is its provision of a transport service for children who live at a distance from the Center, along with its continued enhancement of this service.

A van was donated by a former president of the Dominican Republic in 2008 and since then has been maintained using the budget of the CAD. To keep the van in good condition, trips have been limited to transport of the children in order to extend the life of the vehicle.

The driver was obtained based on his career of more than twenty years with the provincial Technical Office and his good driving record. In spite of not having received special training, the driver has learned sign language on his own and familiarized himself with the individual needs of each child.

The vehicle is safely garaged at the home of the driver. After some months of driving alone without an assistant, and other months with an attendant supplied in rotation from among the teachers at the CAD, a contract was signed with one teacher to handle these duties since he understands the needs of the children and has the temperament to carry out these tasks.

The driver is happy with his work, especially now that he has an assistant. Prior to this, the driver had to stop several times while on the road to handle one or another behavior problem.

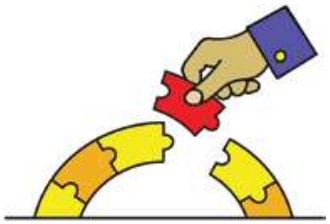
Fortunately, there has never been an accident or problem on the vehicle which rose to the level of a true emergency.

The vehicle has no accessibility features such as wheelchair securement. Children leave their wheelchairs at home, transfer to a regular seat on board the vehicle, and upon their arrival utilize wheelchairs kept available by the school.

This model has turned out to be effective and efficient, the main identified need now being that of expanding the transport service from one vehicle to three in order to handle three routes each day and thus be able to assist each child on a daily basis to take advantage of the activities at the CAD. The best model would be that each town operate with a local CAD, thus integrating children with disabilities with their peers within the community and extending services to younger children as well.

We recommend a mixed approach to such centers, working with local community agencies, the private sector, and the public sector, in order to assure that resources are operated in a more transparent manner and that public schools and related agencies with budgets for special education assure that their budgets not only include the purchase of vehicles and fuel, but also maintenance services in order to assure better and longer service.

SECTION 13. SELECTION AND TRAINING OF DRIVERS AND AIDES



Purpose of this section: *To discuss how to select and train drivers, and any aides/assistants who may be required, in order to ensure that safe transportation is provided*

13.1 Introduction

Drivers[1] of school transport in developing countries often lack formal training. In some of our case studies, drivers have done well by "learning on the job," as noted in reports from Nigeria and the Dominican Republic. Yet some drivers of informal vehicles such as micros or three-wheelers may not even have a license to drive. They may be under the stress of having to work at subsistence pay in complex social and political environments. Research is needed on how to make life easier for these and other drivers. There is some evidence that drivers who are women inspire more confidence in passengers. For example, women heads of households drive the three-wheelers which provide "last mile connectivity" at the end of bus lines for passengers returning home to poor barrios in Montería, Colombia.

13.2 Selection criteria

The driver and any required aides are essential participants in the safe transport of students with disabilities. Students with special needs usually require much more care than other students, and therefore the prospective employer should carefully review applicants, where possible using written public records and by conducting a thorough interview. The driver is charged with the safe transport of students and must deliver students to/from school ready to learn. Therefore, an employer should look for certain characteristics when recruiting and selecting a driver of students with special needs. Factors to consider carefully should include:

- ***A clean criminal record and a good reputation in the community***

The driver and any aides will be working with students, often without direct supervision or other adults present. Therefore, they must be trustworthy. If parents cannot trust that the driver will look out for the best interests of the student, they may refuse the service and withdraw their student from school. Small doubts about the driver can grow into serious, even criminal, accusations. Potential drivers should be required to pass a criminal background check, if such is available. Reference checks from past employers, if available, or from communities of faith, etc. should be thoroughly performed. Any documented record of discrimination should be considered. The school should periodically do a criminal background check on current employees over time to ensure that they maintain a clean criminal record.

1 Throughout this section, the term "drivers" also includes aides or assistants, except when discussing specific driving skills for which any required aides or assistants are not responsible. Aides/assistants may or may not be required on school transportation vehicles, depending on a great many variables. For example, see the case study on "Bus in the Classroom" from the USA. If parents act as aides or assistants, they too should be trained to competency in performing their specific tasks.

- ***A good safety record, especially using the type of vehicle planned for transport of students***

The past safety record usually serves as a good indicator of the future safety record. Employers must carefully consider a potential driver's safety record when choosing who to hire. In some countries, drivers may only maintain their driver's license or certification if they have no more than two violations in a 3 -year period, and no convictions for driving while under the influence of alcohol or drugs. If the driver's license has ever been suspended, it is common in many countries to require two full subsequent years with no moving violations.

- ***Compassion and patience***

Providing service for students with special needs can at times be challenging due to the students' disabilities. The compassion and patience of drivers or aides must always override any frustration that might otherwise arise from stressful situations. The students' needs should be foremost in their minds. Not every personality type is capable of maintaining this focus.

- ***Attention to detail***

Providing transportation requires the ability to manage multiple tasks while being aware of the many things which may affect the safety of the ride. Drivers who are incapable of performing the many functions in a precise manner will not be able to maintain the level of safety required. This set of tasks becomes more difficult when one considers that even slight differences in how a student is behaving must be noticed in order to keep the student safe.

- ***Physical strength or flexibility***

Strength and flexibility may be needed to help certain students to board, exit, and be secured properly. Drivers and aides should be taught to avoid bodily contact with passengers while helping them to affix seat belts or secure wheelchairs. They will also be expected to help each student evacuate the vehicle safely in the event of an emergency.

- ***Good attendance***

Most students, especially students with special needs, benefit from the stability of a regular driver. Over time, drivers will acquire knowledge beyond the information provided them by the school. This understanding of things like student habits and precursors to extreme behaviors can be critical to a student's educational success.

- ***Willingness or capacity to learn necessary health and safety procedures***

Students with special needs frequently require extra care. Procedures like cleaning up bodily fluids may only require a few minutes to learn, but a lengthier time to perform. More training and care are needed for any medical procedures that may be required.

- ***Interpersonal and communication skills***

In the course of performing their daily job, drivers and aides need to regularly interact with parents, educators, students, and the community. They need to communicate professionally and successfully in order to carry out their roles.

- ***Related Experience:***

Although not required, it is helpful if the prospective driver already has experience driving or working with people with disabilities. It is not possible to learn through training everything one needs to know as a driver. Prior relevant life and job experiences are helpful.

Even if the driver is a friend or relative, extra care should be taken to ensure that high moral standards and driving skills are met. Where possible, the school should recruit and select drivers since they have more resources than a parent of a child with a disability. School personnel may already have the experience and capabilities needed to determine the qualifications of teachers, so they could expand their scope to check drivers or aides. If possible, the school could also conduct the necessary training, or at least ensure that the transport provider conducts the required training. Such training could seldom be done by a parent of a student with a disability. However, including parents in the training could help the driver or aides to better understand the particular needs and behaviors of their children.

13.3 Ongoing responsibilities

It is essential that prospective drivers and aides understand that, even after being hired, lapses in any of the selection criteria areas may be cause for dismissal. They must maintain these standards for the safety and proper treatment of students. The school should monitor driver behavior and driving.

To help ensure continued compliance, transportation supervisors or school leaders should perform regular checks for current required driver documentation, as well as proper health certification. It should be required that drivers are regularly checked for risks such as heart problems, untreated high blood pressure, untreated diabetes, or vision and hearing loss. Additionally, some check on strength and flexibility should be performed to ensure that drivers retain the ability to properly operate equipment, including wheelchair lifts and ramps if available. Drivers should also maintain the ability to move students in wheelchairs.

Parents and the schools should be alert to complaints or signs that there may be problems with drivers or other students on the vehicles. Even non-verbal and low functioning students can provide indications of problems. Such complaints or signs should be quickly investigated by a responsible person who can be thorough and unbiased in his/her investigation. Signs of problems could include sudden crying and fear of riding, bruises or cuts, torn or soiled clothes, missing personal items, stories from other students, and bad dreams about riding. All complaints should be investigated. Statements from other students and the driver should be collected. In such cases, it is best to not assume anything about the truth or accuracy of a complaint until it is fully investigated. Effective investigations may uncover other problems which may require further investigations. Timely and complete investigations should be considered essential to uncovering problems and creating opportunities to provide better service for students.

13.4 Good driving skills and other minimum qualifications

The family and school should require that a potential driver demonstrate a set of safe driving skills and possess a good driving record. Qualifications include:

- Possess a proper driver's license for the type of vehicle and service being provided, that meets the legal age requirements and complies with any applicable laws

- Be able to read and/or understand schedules, maintenance manuals, financial records, etc. if appropriate to the job

- Successfully pass drug/alcohol testing, in countries where such testing is available

Once hired, drivers need to maintain a good driving record and keep their driver's license(s) current.

Transportation providers should resist pressure to be lax on the topic of alcohol and drug use by drivers. Students could suffer due to driver inattention to proper safety practices and driving techniques, or inattention to students, if drivers are allowed to drive while under the influence of drugs or alcohol. Driver attendance problems are sometimes correlated to drug and alcohol abuse. Ideally, the school should have in place (or contract out for) an on-going drug/alcohol random testing program as well as post-accident testing. If employees are allowed back to work after a drug or alcohol offense, follow-up testing should also be performed. Several good examples of effective drug/alcohol testing programs can be found by searching the internet. Drivers need to be educated about the dangers of drug and alcohol abuse, what is involved in testing procedures and conditions, and the disciplinary actions that will result if tests are positive. Whoever the drivers work for – whether schools, parents, or under agreement with a transportation company – the employer needs to be aware and trained in reasonable suspicion to be able to spot potential abusers before they drive.

13.5 Driver training

Whether the prospective driver is a full time employee, a volunteer, or even a parent of a student who will be paid to drive, it is essential that all involved with the transportation can feel comfortable that service will be safe and reliable. Therefore, all drivers should go through a training program that has appropriate content for the transport services to be provided. The driver should demonstrate thorough knowledge and understanding of the training provided and should not be allowed to transport students until this can be demonstrated both by written or oral exams and by driving performance exams. For example, the driver trainee may demonstrate a thorough understanding of disabilities and how to safely deal with the special needs of students with disabilities by completing a written exam. But if the driver cannot demonstrate proper control and safe driving habits by a performance exam on the actual vehicle to be used, they should not be allowed to transport students.

For more information on driver training

- See Appendix 4 for a sample driver training curriculum
- Go to pages 45-56 of AEI's paratransit guide at <www.globalride-sf.org/paratransit/Guide.pdf>
- Go to the Transit Access Training Toolkit at <http://go.worldbank.org/MQUMJCL1W1>

A successful driver training program will prepare drivers to serve students in a manner that will satisfy both parents and school personnel. Training requirements should be published and shared with parents, school site personnel, drivers, and transportation companies/departments. Ideally, the training should be conducted by full-time training professionals. However, circumstances may require that a variety of current transportation providers and outside experts (like nurses) share different aspects of the training. Sometimes, if funding is available, it may be necessary to contract with a training company, another school system, or even to borrow or pay for trainers from another city.

Due to costs and time constraints it may be necessary to conduct the training in phases over a lengthy period of time. For example, one training session might be focused on disability awareness and how to operate equipment. Another, conducted several weeks or months later, might focus on documentation and reporting requirements.

In any case, the time spent training should be documented for every trainee. Copies of the current training records should be maintained by the school and each individual driver. This allows them both to share responsibility for meeting training requirements. These records might become critically important in the investigation of an accident.

Recognizing that even the best training fades with time, top programs will provide retraining on a regular schedule. Also, these programs vary the type of training. For example, a training that was taught in a classroom setting one time might be taught in a hands-on manner the next time. Providing for scheduled renewal of training requirements not only verifies that the drivers' skills and knowledge continue to meet standards, but it also allows more current safety practices to be learned.

13.6 Attendant training (also see Section 5.5)

Many school districts will assign attendants to monitor and ride along with students who have severe medical or behavioral issues. ***Attendants should go through a similar screening process as drivers except for the specific driving requirements.*** Attendants also should share training sessions with drivers. Except for the actual driving of the vehicle, it is as important or even more important that attendants receive the specialized training given to drivers. Since they are assigned to be in close and regular contact with students with disabilities, skills and knowledge in areas such as disability awareness and equipment usage are essential. Some attendants may be assigned because of medical concerns for a student while others may be assigned because of behavioral issues. Obviously, the training focus for each should be slightly different. However, enough cross-training should be provided to ensure that the attendants can be useful in helping with whatever situation may arise. That is, even though attendants might be assigned to monitor health related conditions for particular students, they should ideally know enough to assist with behavioral issues that might arise with other students.



Curitiba, Brazil, provides trained attendants on their bus fleet for children with disabilities. Both drivers and attendants are retrained on an annual basis. - Photo with permission of CSMC-Curitiba and SITES

It is a common misconception that when an attendant is present, the driver's responsibility is just to drive while the attendant's responsibility is solely to supervise students. In reality, the driver never gives up responsibility for the students. When an attendant is present, it is best that (s)he work as a team with the driver to best support students.

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MSU-AEI international survey of principals of schools serving children with disabilities

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(see next page for Reviewers)

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APPENDIX 1

Description of survey collaboration by Missouri State University and Access Exchange international

(This information supplements the box introducing this survey at Section 1.2 in this guide)

The purpose of this English-language survey, called the "MSU-AEI survey" in this guide, was to gather data concerning transportation issues facing children with disabilities needing transport to school in less-wealthy countries. The survey contributes to the body of data used to guide the preparation of this publication.

The survey was developed and disseminated via SurveyMonkey by members of the team preparing this guide, in collaboration with Professor Paul M. Ajuwon of the Dept. of Counseling & Special Education of Missouri State University. Completed surveys were submitted during the period of October 2015 into January 2016. We thank Professor Ajuwon, Emily Klug, and others at MSU for handling the technical aspects and most of the dissemination of this survey, without which this work would not have been possible. Prof. Ajuwon is using the survey results in his work in the field of special education.

A lengthy survey instrument was required to even begin to explore transportation issues. Some survey respondents omitted answers to some or many questions. However, extensive data on transportation was obtained from school directors or their designates at 54 schools serving 8,449 students with disabilities. Many of these schools exclusively serve children with disabilities while others include such children in their larger student bodies. Forty-three of the schools are in Sub-Saharan Africa, while 11 are from countries in the Mid-East and Asia.[1] The 43 schools in Sub-Saharan Africa included 14 private schools and 29 government schools. Nineteen of the schools (44%) are in Nigeria, 10 schools (23%) are in Kenya, 7 schools (16%) are in South Africa, while others are in Tanzania, Uganda, Malawi, and Togo. In some cases different filters were used to broaden the number of valid responses to different categories of information, resulting in data obtained in some cases for up to 48 Sub-Saharan African schools.

Except for introductory questions, the survey questions and their responses are summarized in sections 1.2, 2.5, 3.3, 3.4, 5.2, 6.2, and 7.4 on different topics in this guide. Survey questions are highlighted in yellow. The introductory questions determined if the schools are government or private schools, day schools or boarding schools, and the total number of students. Concerning students with disabilities, they query the number of such students, number of boys and of girls, ages of youngest and oldest student, and first and second most common disabilities. Even allowing for many variations in terminology, as well as for the many students with multiple disabilities, it appears that the largest group of students are those with intellectual disabilities, followed by those with sensory disabilities, with somewhat fewer students stated to have physical disabilities.

1 Because of the smaller sample, we view the data from the few surveys in the Mid-East and Asia as less suggestive, except for schools in the wealthy city of Hong Kong, summarized in the box at Section 5.3. Surveys returned from India, Jordan, Iran, Thailand, and Micronesia provided less information and were not used in overall tallies although they generally supported the trends indicated in the surveys from Sub-Saharan Africa.

APPENDIX 2

Student information needed for drivers and schools

This information on each student with a disability can be modified according to specific situations. This appendix supplements Section 12 on Policies and Procedures.

TRANSPORTATION REQUEST

Updated _____

Name: First: _____ Last: _____ Nickname: _____ Grade: _____

Student ID #: _____ Parent/Guardian Name: _____ Phone: _____

PLEASE MARK APPROPRIATE BOXES AND PROVIDE ADDITIONAL DETAIL IN THE NOTES SECTION

Special Equipment

- ☐ **Wheelchair**
- ☐ **Walker / Cane**
- ☐ **Car Seat**
- ☐ **Safety Vest**
- ☐ **Oxygen Transported**

Medical Factors

- ☐ **Hearing Impaired**
- ☐ **Visually Impaired**
- ☐ **Tracheotomy**
- ☐ **Medical Assistant Required**
- ☐ **Suctioning Required**
- ☐ **Seizures** *(type/frequency/duration)*
- ☐ **Monitor Airway**
- ☐ **Insulin Dependent**
- ☐ **Severe Allergies** *(describe)*

Safety Factors

- ☐ **Walks to bus unassisted**
- ☐ **Walks to bus but needs assistance**

- ☐ **Preferential Seating** *(describe)*
- ☐ **Requires Assistance Walking**
- ☐ **Aggressive / Dangerous Behavior**
- ☐ **May Run Away**
- ☐ **Must Be Secured in Vehicle**
- ☐ **Unable to Communicate**
- ☐ **Difficulty Following Directions**
- ☐ **Medication to be transported**
- ☐ **Must be Met by:** _____

Notes and other descriptions

_____

_____

_____

_____

Addresses

Pick up Address: _____ Phone # _____

Drop off Address: _____ Phone # _____

APPENDIX 3

Sample of grade-level transportation standards (for consideration where applicable)

This appendix supplements Section 9 on Travel Training for Children and the case study on "Bus in the Classroom" in the USA

In the USA, the Individuals with Disabilities Education Act (IDEA) requires that all related services are provided in the least restrictive environment. Students with disabilities should be provided access to the educational program, to the extent possible, in the same manner as their non-disabled peers. The goal is to assure access to the educational program while teaching independence skills in order to achieve this goal.

Levels of Service

The district offers transportation service at multiple levels to coincide with each student's skills and abilities. Listed below are, from least restrictive to most restrictive, the service options available.

Public Transit Where public transit is available and appropriate students may use that service with or without accommodations for their disability.

Centralized This bus service is provided at the designated neighborhood bus stop which may be used to provide bus service for students in the general education program.

Transitional The bus stop is located at a safe point which is somewhere between the home location and the regular neighborhood bus stop. This bus stop location can be customized based upon the student's abilities. As the student's skills increase transportation staff will work with the Individualized Education Program team to provide a progressively more independent location.

Curbside Service is provided at the closest safe point to the student's residence. This bus service is the most restrictive service provided. Typically, for students requiring this service, it is expected that a responsible adult is present to deliver/receive custody of the student.

Grade Level Standards

Although every student has an individualized education program in the USA, the following guidelines help establish targets and goals. ***Not every student in a given program will be able to achieve these standards while some students will be capable of exceeding them.*** In each case, the IEP team should ***assess the student's skills and abilities*** in order to establish the correct level of service. Where a student's skills and abilities do not meet the expected service standards a targeted intervention is warranted.

Program	Pre-Kinder & Kindergarten	1st – 3rd	4th – 6th	7th – 9th	10th – 12th
Autism Program	Curbside	Curbside	Transitional	Transitional	Centralized
Students with Autism in general education classrooms	Curbside	Transitional	Transitional	Centralized	Centralized
Mild/Moderate developmental delay	Curbside	Transitional	Centralized	No special service required	No special service required
Moderate/Severe requiring life skills curriculum	Curbside	Curbside	Curbside	Transitional	Transitional
Visually Impaired	Curbside	Curbside	Transitional	Transitional	Centralized
Emotional Disability	Curbside	Curbside	Transitional	Transitional	Centralized
Deaf / Hard of Hearing	Curbside	Curbside	Transitional	Transitional	Centralized

Note: In most cases, students who have progressed to centralized service in school would be capable of using public transportation as adults where available.

APPENDIX 4

Sample driver training curriculum

This appendix supplements Section 13 on Selection and Training of Drivers & Aides

Driver training is an essential component of any safe transportation operation. The following outline summarizes the sections of a thorough training program recommended for all transporters of students with disabilities. Every service provider may not be able to provide all of this training every year. However, an effort should be made to provide a complete training program before transportation is to begin. A schedule of renewal training should also be developed and adhered to. Supplemental training should be provided as warranted.

1. ***Student related content***
   a) Specific service requirements of the student(s) being transported
   b) Specific emergency medical procedures (may include CPR, seizure response, and other procedures required by the student's needs and appropriate law)
   c) Specific student emergency evacuation plans.

2. ***Driver skills***
   a) Safe operation of the vehicle for the traffic setting and conditions
   b) Safe pickup and delivery practices (including proper passing of custody of the student at pickup stops and school sites)
   c) Map and route document reading or understanding
   d) Proper use of vehicle controls (brakes, lights, steering, etc.)
   e) How to handle vehicle related emergencies

3. ***Vehicle or equipment related content***
   a) Daily pre-trip inspection
   b) Maintenance requirements
   c) Vehicle status and problem-reporting requirements
   d) Correct use of accessibility features (including any car-seats, tie-downs, lifts, ramps)
   e) Safe storage of equipment and belongings of students during transport

4. ***Disability related content***
   a) Types of disabilities and their characteristics
   b) General disability awareness and sensitivity
   c) Student behavior management
   d) Safety rules including noise limits, food restrictions, and proper seating
   e) Dealing with blood borne pathogens and other bodily fluids
   f) General first aid procedures

5. ***Policy or law compliance contents***
   a) Reporting evidence of child abuse
   b) Reporting an incident on the vehicle
   c) Child care and custody requirements
   d) Attendance, time-keeping and other related procedures
   e) Communications procedures (with parents, school site staff, and any transportation office staff)
   f) Testing for drug and alcohol use (when available)

g) Self-reporting of driver's health condition if it impacts safe driving
h) Distracted and inattentive driving
i) Customer service
j) Traffic laws
k) Equipment related laws (e.g. concerning seatbelts and other child safety restraints)
l) Driver and vehicle licensing requirements

APPENDIX 5

Seeking transportation for your child with special needs

Frequently, parents of children with special needs are not able to receive assistance in transporting their child to school. This lack of help may result in the child missing out on education altogether. This unfortunate result might be overcome with the help of various public agencies, charities, religious organizations and private donors. Oftentimes, these opportunities are missed because parents are not familiar with how to share their needs/concerns. The following list of pointers explains the various parts of a communication with an agency or a potential supporter regardless of the mode of communication (via phone call, letter, or email).

Suggestion	Example
Introduce yourself politely	1. Dear Minister Garces 2. Dear Principal Gloria
	1. I am a single parent of a seven year old who cannot get to school because his wheelchair is broken. 2. My child has trouble walking. During the rainy season the walking path becomes so slippery and full of puddles that she cannot safely get to school. 3. The school bus at _____ School is no longer operational. We need a replacement vehicle so that my child can get to school.
Explain why you contacted this person	1. Since you are in charge of the department of public roads I am hoping you can help me. 2. Since you are known to provide wheelchairs for poor parents whose children require them.
Be very specific about what you are asking for	1. My child needs a larger carseat. He is 122 cm. tall and weighs 35 kg. 2. My child needs a safety belt to keep him from falling out of the auto-rickshaw.
Discuss future communications	1. How may I contact you next week by telephone? 2. You may contact me any day after 3 p.m. My cellphone # is…
Ask for a referral	If you are not able to help me solve this problem could you please refer me to someone who might help me?

APPENDIX 6

Where to go for further information

Go to a search engine such as Google if a website does not open.

Title or subject	Location
Access & Mobility, a Guide for Transporting Students with Disabilities in California (2nd edition, published by the California Association of School Transportation Officials)	Request a PDF from Pete Meslin at pmeslin@nmusd.us
American School Bus Council	<www.americanschoolbuscouncil.org>
Auto-rickshaw improvements	<bit.ly/16Xwr47>
Beyond the Yellow Bus (Center for Cities and Schools, University of California, Berkeley, USA)	<citiesandschools.berkeley.edu/reports/CC+SYellowBus2014.pdf>
Buffalo Bicycles	<http://www.buffalobicycle.com>
Bus Rapid Transit Accessibility Guidelines	<http://go.worldbank.org/MQUMJCL1W1>
Eden Social Welfare Foundation (hosts TRANSED 2018)	<http://eden.international/>
Enhancing the mobility of disabled people: Guidelines for practitioners (focus on developing countries)	<www.keroul.qc.ca/DATA/PRATIQUEDOCUMENT/229_fr.pdf>
EquallyAble Foundation	<www.equallyable.org>
Global Partnership for Education (supports 65 developing countries to ensure that every child receives a quality basic education)	<www.globalpartnership.org/> Also see blog at this site, "Transportation to school for children with disabilities: Closing the gap"
Hand-pedaled trikes (His Wheels International)	<www.hiswheels.org>
Inclusive Mobility: A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure (general focus)	<http://www.gov.uk/government/publications/inclusive-mobility>
International Classification of Functioning, Disability, and Health (World Health Organization, 2001)	<www.who.int/classifications/icf/>
Making Access Happen: A guide for advocates and planners	<www.independentliving.org/mobility/rickert200302.pdf>
Mobility management (National Center for Mobility Management)	<nationalcenterformobilitymanagement.org/by-topic-travel-instruction/>
Paratransit for Mobility-impaired Persons in Developing Regions: Starting up and scaling up	<www.globalride-sf.org/paratransit/Guide.pdf>
The Rickshaw Project (Network of Organizations Working with People with Disabilities, Pakistan), also hand-pedaled tricycle design	<www.nowpdp.org>
Safe routes to school (how to start a program)	<http://www.nhtsa.gov/people/injury/pedbimot/bike/Safe-Routes-2002/>

Safe routes to school (national center in USA)	<www.saferoutesinfo.org>
Transit Access Training Toolkit	<http://go.worldbank.org/MQUMJCL1W1>
Travel training (Association of Travel Instruction, USA)	<www.travelinstruction.org/travel-training>
Travel training (Bus in the Classroom information)	<www.nmusd.us/BIC>
UNICEF	<www.unicef.org>
United Nations Convention on the Rights of Persons with Disabilities	<www.un.org>
United Nations Sustainable Development Goals	<https://sustainabledevelopment.un.org>
Urban Street Design Guide (National Association of City Transportation Officials)	<nacto.org/publication/urban-street-design-guide/>
Walkability Assessment Tool	<www.ipa.udel.edu/healthyDEtoolkit/docs/WalkabilityAssessmentTool.pdf>
Walkability audits	<http://www.cdc.gov/nccdphp/dnpao/hwi/toolkits/walkability/audit_tool.htm >
Walkability checklist	<http://www.saferoutesinfo.org/sites/default/files/walkabilitychecklist.pdf>
Walkability City Tool (analyzes the street as an element of a larger network)	<http://walk21vienna.com/?dg_voting_submission=walkability-city-tool>
World report on disability (produced jointly by the World Health Organization and the World Bank)	<www.who.int/disabilities/world_report/2011/en/>