



**USAID** | **DELIVER PROJECT**  
FROM THE AMERICAN PEOPLE

# Transport Management

A Self-Learning Guide for Local Transport Managers of  
Public Health Services



**OCTOBER 2010**

This publication was produced for review by the U.S. Agency for International Development. It was prepared by the USAID | DELIVER PROJECT, Task Order I.



# **Transport Management**

A Self-Learning Guide for Local Transport Managers of  
Public Health Services

The authors' views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.



## **USAID | DELIVER PROJECT, Task Order 1**

The USAID | DELIVER PROJECT, Task Order 1, is funded by the U.S. Agency for International Development under contract no. GPO-I-01-06-00007-00, beginning September 29, 2006. Task Order 1 is implemented by John Snow, Inc., in collaboration with PATH; Crown Agents Consultancy, Inc.; Abt Associates; Fuel Logistics Group (Pty) Ltd.; UPS Supply Chain Solutions; The Manoff Group; and 3i Infotech. The project improves essential health commodity supply chains by strengthening logistics management information systems, streamlining distribution systems, identifying financial resources for procurement and supply chain operations, and enhancing forecasting and procurement planning. The project also encourages policymakers and donors to support logistics as a critical factor in the overall success of their health care mandates.

### **Recommended Citation**

Cuninghame, Christopher, Gary Forster and Chris Saunders. *Transport Management: A Self-Learning Guide for Local Transport Managers of Public Health Services*. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 1.

### **Abstract**

This guide comprises a self-directed course on managing sustainable, cost-effective transport management systems for Ministries of Health and other organizations implementing public health programs. It is written for local managers of public health services.

Transaid has a long experience in promoting best practice in transport management throughout Africa and elsewhere. Their activities include training and supporting the many transport managers and officers who work every day with MoH and other fleets on strategic, practical, organizational and operational transport management issues that arise. Through their extensive experience in working with local community organizations, governments, institutions, and donors, they have been able to build capability of transport and fleet management skills of those who need it most. Their experience and curriculum provided much of the background information for this guide.

Within Transaid, it was edited and compiled by Christopher Cuninghame, Gary Forster, Ed O'Connor, and Chris Saunders. This built on the work already done by Sarah Nancolas and Saka Dumba. Comments on various drafts and important contributions were provided by Adesoji Adegbulugbe, Charlotte Anderson, Colin Burman, John Cook, Magaji Dauda, Danim Ibrahim, Yusuf Ibrahim, Edward O'Connor and Mohammed Ubale.

Cover Photo: With log books and other transport management system forms in hand, visiting officials watch as a vehicle operator from the Health & Welfare Department in South Africa's Limpopo Province (formerly Northern Province) demonstrates how engine oil and coolant levels are checked each time a vehicle is readied for use. (Photo by Transaid)

## **USAID | DELIVER PROJECT**

John Snow, Inc.  
1616 Fort Myer Drive, 11th Floor  
Arlington, VA 22209 USA  
Phone: 703-528-7474  
Fax: 703-528-7480  
Email: [askdeliver@jsi.com](mailto:askdeliver@jsi.com)  
Internet: [deliver.jsi.com](http://deliver.jsi.com)



# Contents

Acronyms.....	vi
Foreword.....	viii
Acknowledgments .....	x
How to Use this Guide .....	xii
Module 1. Operational Management.....	I
Introduction .....	I
Tasks and Responsibilities.....	I
Vehicle Planning: the Main Steps .....	8
Operational Controls .....	13
Case Study .....	17
Self Assessment.....	19
Self Assessment Answers .....	20
Module 2. Financial Management .....	21
Introduction .....	21
Transport Finance Vision.....	21
Replacing Vehicles.....	22
Annual Budget and Core Financial Management.....	25
Case Studies.....	27
Self Assessment.....	29
Self Assessment Answers .....	30
Module 3. Fleet Management.....	31
Introduction .....	31
Specification, Selection, and Procurement of Vehicles .....	31
Maintenance and Repair of Vehicles.....	34
Managing the Maintenance Schedule.....	39
Managing Vehicle Maintenance .....	41
Maintenance Options.....	43
Cold Chain, Distribution Modeling, and Truck Fill.....	44
Case Study .....	49
Self Assessment.....	51
Self Assessment Answers .....	52
Module 4. Health and Safety .....	55
Introduction .....	55
Health and Safety in Transport Management.....	55

Crash and Incident Procedures for Vehicles.....	57
Asset Security and Transport Insurance .....	61
Other Health and Safety Issues .....	62
Case Study.....	64
Self Assessment.....	67
Self Assessment Answers.....	68
Module 5. Human Resources.....	71
Introduction .....	71
Organizational Structure.....	71
A Competent, Committed Workforce.....	75
Developing Specific Policy Guidance.....	81
Case Study.....	82
Self Assessment.....	83
Self Assessment Answers .....	84
Module 6. Monitoring and Evaluation .....	87
Introduction .....	87
Transport Management Information.....	87
Key Performance Indicators.....	88
Case Studies.....	99
Self Assessment.....	101
Self Assessment Answers .....	105
Module 7. Situational Analysis .....	111
Introduction .....	111
Planning for a Situational Analysis.....	111
The Ten Steps of a Situational Analysis.....	112
Case Study.....	122
Self Assessment.....	125
Self Assessment Answers .....	126
Module 8. Is Outsourcing an Option?.....	129
Introduction .....	129
What is Outsourcing? .....	129
When Should Outsourcing be Considered? .....	129
Implementing Outsourcing.....	132
Examples of Outsourcing TMS Activities.....	133
Case Study.....	133
Self Assessment.....	135
Self Assessment Answers .....	136
Module 9. Policy and Policy Development .....	139
Introduction .....	139
Policies vs. Procedures .....	139



Policies and Procedures in Decentralized Systems .....	140
Policy Structure for TMS .....	141
Reviewing and Developing Policies: the Big Picture .....	141
TMS Stakeholder Role In Policy Development and Review .....	142
Case Study .....	143
Self Assessment .....	145
Self Assessment Answers .....	146

## Appendices

A. Core Transport Management System Forms .....	149
B. Ghana Transport Policy.....	173
C. Resources for TMS Stakeholders .....	183
D. Transport Assessment Tool.....	185

## Figures

1. A Typical National Transport Management Human Resource Structure.....	2
2. A Typical Health Facility or Provincial/District Office Transport Management Structure .....	2
3. Completed Period Movement Plan .....	9
4. Completing the Trip Authority .....	10
5. Completing the Period Transport Schedule .....	11
6. Completing the Seven-day Transport Schedule.....	12
7. All-inclusive/km Costs Over Time .....	23
8. Motorcycle Daily Checks and Service Schedule .....	35
9. Vehicle Servicing .....	37
10. Completing the Vehicle Maintenance Summary .....	40
11. Twelve-month Plan .....	41
12. Direct Delivery Network Model.....	46
13. Distribution Center Network Model.....	47
14. Organizational Chart for a Health Service Transport Management System.....	73
15. KPI Option Tree .....	96
16. Fuel Consumption and Running Costs.....	97
17. Availability, Use and Needs Satisfaction .....	98
18. Standard Vehicle Inventory Form.....	115

## Tables

1. Transport Management Responsibilities .....	6
2. How KPIs Accompanying Low Needs Satisfaction Inform Action .....	97
3. Basic Transport Needs.....	117
4. Actual Fleet Requirements .....	118
5. Transportation Management Cost Items.....	131
6. Examples of Policies and Procedures .....	140

# Acronyms

GM	General Manager
GIS	Geographic Information System(s)
GPS	Global Positioning System(s)
HR	Human Resources
ID	Identity (personal identity card)
kg	Kilograms
km	Kilometers
KPI(s)	Key Performance Indicator(s)
MOH	Ministry of Health
NGO	Nongovernmental organization
PPM	Planned Preventive Maintenance
SOP(s)	Standard Operating Procedure(s)
TA	Transport Assistant
TMS(s)	Transport management system(s)
TO	Transport Officer
TOR	Terms of Reference
USD	United States dollars
VO	Vehicle Operator
W/C	Week commencing



# Foreword

*Transport Management: A Self-Learning Guide for Local Transport Managers of Public Health Services* is based on Transaid's extensive work in promoting best practice in transport management throughout Africa and elsewhere. Transaid is an international UK development charity that aims to reduce poverty and improve livelihoods across Africa and the developing world through better public health transport.

This guide presents sound principles of transport management coupled with real-life experience. Under a USAID | DELIVER PROJECT sub-contract, Transaid wrote the basic curriculum, which was subsequently transformed into a self-learning format by USAID | DELIVER PROJECT. The Transport Assessment Tool accompanying the guide was developed by the USAID | DELIVER PROJECT.



# Acknowledgments

The authors would like to thank all of the current and former Transaid staff members who contributed to the development of this guide, particularly Edward O'Connor, Sarah Nancolas and Saka Dumba.

For their expert advice on various drafts of this guide and their important contributions to its final contents, we would like to thank: Adesoji Adegbulugbe, Charlotte Anderson, Colin Burman, John Cook, Magaji Dauda, Danim Ibrahim, Yusuf Ibrahim, Edward O'Connor and Mohammed Ubale.

The authors are grateful to the USAID | DELIVER PROJECT, in particular Paul Crystal and Linda Allain, for their extensive work in transforming the original material into a highly accessible self-learning format; to Kelly Hamblin and Joseph McCord for their important contributions; and to Chris Warren for contributing the Transport Assessment Tool.

Special thanks go to Doctor Thomas Corsi, Michelle Smith, Professor of Logistics, and Robert H. Smith of the University of Maryland School of Business (U.S.A.) for thoroughly reviewing the first draft, providing excellent suggestions and recommendations, and making the material even better.



# How to Use this Guide

Transportation and storage are core logistics and supply chain activities and, in international public health, they often represent the largest share of an organization's budget. Having a well-functioning transport management system can extend the working life of a transport fleet, reduce the overall costs of transport, and improve service.

This guide is written to share comprehensive best practices for transport management with local transport and logistics managers of public health services in developing countries. Staff with other management, operational, or support roles will also benefit from the lessons and methods detailed herein.

The guide is structured as a self-learning manual. It is divided into nine modules, each of which thoroughly discusses one of the main aspects of transport management. The appendices include examples of forms and a model transport policy, links to additional resources, and a transport assessment tool. The modules themselves are organized in a similar manner—

1. The first (main) section discusses theory.
2. The second section contains a case study illustrating an actual example of what had been described previously.
3. The third section consists of self-assessment questions relating to what has been learned, followed by answers to the questions.

The sequential flow of topics in this course begins with basic management principles in Module 1 and progresses to the use of Key Performance Indicators (KPIs) for routinely measuring the performance of your TMS and informing steps for further development in Module 6.

Situational analysis (Module 7), outsourcing (Module 8), and policy development (Module 9) are purposely covered later in this guide so that you can learn about the terms, ideas, and approaches they involve in the preceding modules. However, in practice, the foundation of an effective TMS is a situational analysis. Transport Managers and other planners are encouraged to begin the process of improving a TMS by conducting a situational analysis and then using the results to inform the development of policies that address identified needs and challenges. Detailed approaches to subsequently implementing the specific improvements that are identified in a situational analysis are covered in this guide's remaining modules.



## Learning Approaches

You should complete each model in order before moving to the next. The following steps can be helpful in organizing your learning process—

1. Read the first section of the module as many times as you feel is necessary to understand the material that is presented.
2. Read the case study and consider the following questions:
  - a. How does this case study compare to some of your own experiences?
  - b. What surprises you about what occurred and what was done in response?
  - c. Would you have done things differently? How?
  - d. What lessons about effective TMS management were shown in relation to the module?
  - e. How many other examples can you find on the points made about TMS development in other modules you've already covered?
3. Read the self-assessment questions carefully and write down your answers. Check your answers against those provided on the subsequent pages. If they all match, move on to the next module. Review the sections of the module that correspond to any questions you answered incorrectly and ensure that you understand them before moving on.

Because this guide is designed as a self-learning guide, there is no *passing mark* for the questions and no certification upon final completion. For the essay-type questions, it is possible that the answers will not be exactly the same. This is fine as long as you demonstrate a good understanding of the theory the suggested answer refers to.

## A Few Hints

Take breaks. Regular breaks of 10 to 15 minutes every hour are recommended.

Try to apply what you are learning to a real life situation. This will help in ensure that you'll remember theories well.

Work with a group. Studying with friends and colleagues is an excellent way to learn because it facilitates experience sharing and discussion of the importance of theories to your work.

Pace yourself. There is no time attached to completing the modules. Pushing too hard can result in frustration; but taking too much time between modules is not recommended either because important aspects can easily be forgotten over time.



# Module I. Operational Management

## Introduction

After completing this module, you will be able to:

- describe key personnel tasks and roles involved in operational management;
- manage transport planning, vehicle distribution and returns, and fuel supply;
- manage key routine operational tasks;
- use the appropriate forms to collect management information; and
- implement standard operating procedures (SOPs).

## Tasks and Responsibilities

Operational management comprises the day-to-day management of the physical, technical and human resources required to operate a vehicle fleet. Successful operational management ensures that all staff members understand their responsibilities and carry them out effectively.

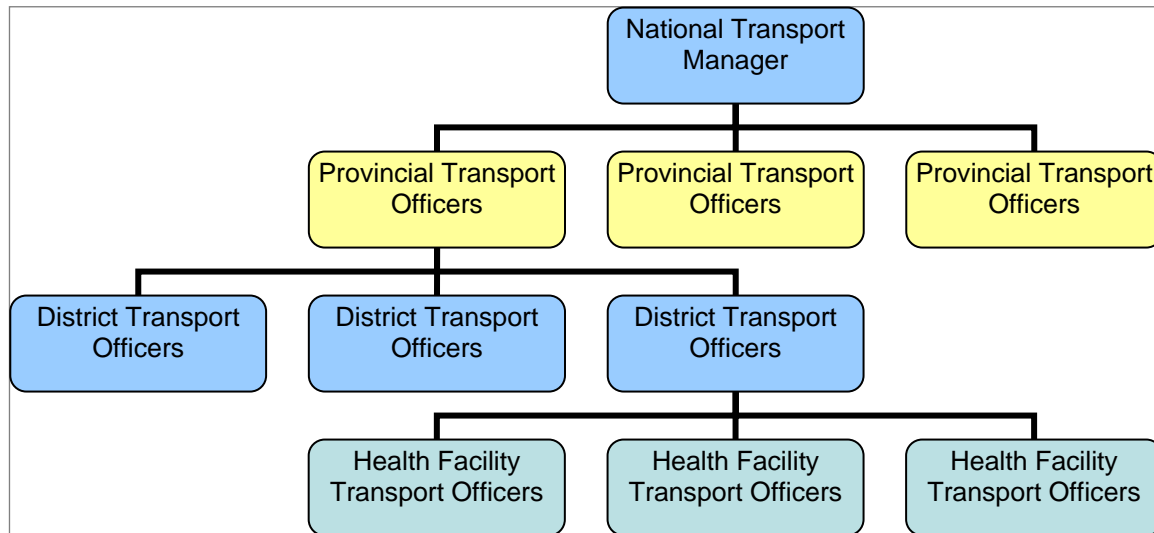
Local management teams are usually responsible for managing transport activities, including situations in which vehicles are based at a separate location or in the event that provision of vehicles is outsourced to an external company or an organizational transport unit. The responsibility for monitoring and controlling performance and for setting standards always remains with the health unit.

Although there is no standard human resources (HR) structure for transport management, two personnel factors are constant in all systems:

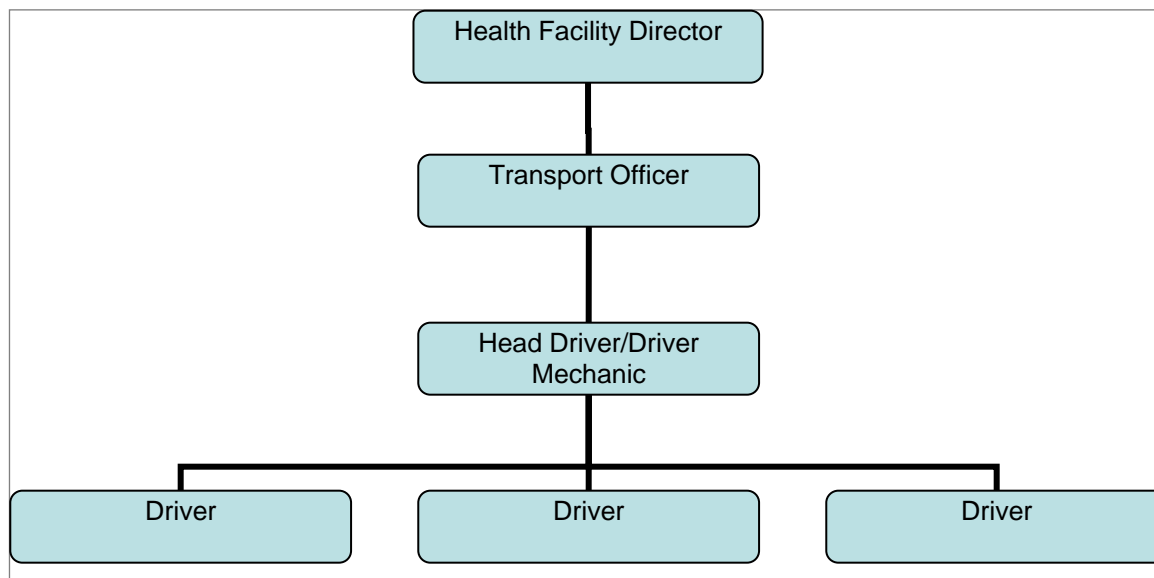
1. Transport managers are required at all organizational levels.
2. Vehicle operators and users will be found wherever vehicles are located.

Figure 1 below illustrates a typical national transport HR structure for transport management at the national level and Figure 2 exemplifies an HR structure at the provincial/district or facility level.

**Figure 1. A Typical National Transport Management Human Resource structure**



**Figure 2. A Typical Health Facility or Provincial/District Office Transport Management Structure**



## **Vehicle Operators**

Vehicles operators (VOs) are the key people responsible for the effective, safe, and economic operation of a vehicle. In this guide, VOs refer to both professional drivers and drivers who use vehicles to carry out official duties.

Vehicle users are people who are transported to carry out their duties. As suggested above, vehicle users may also be vehicle operators, in which case they must meet all VO requirements as well as those requirements relating to their official duties.

Regardless of their primary duties, all VOs require a valid license and must be properly trained to safely use and care for all forms of transport they will be required to operate (e.g., motorcycles, bicycles, four-wheel vehicles, and larger vehicles).

The VO is responsible for:

### **I. The Vehicle**

- checking and signing the vehicle check sheet each time the vehicle is taken out and returned (see form in Appendix A of this guide);
- keys;
- checking lights, tires (for damage and pressure), and engine oil and coolant levels;
- fueling, including the use of fuel vouchers or fuel cards (if applicable);
- completing a vehicle log book entry for each trip (see Appendix A for a sample form);
- promptly collecting and returning the vehicle;
- reporting any problems using the vehicle defect form (see form in Appendix A);
- correctly operating, ensuring the security of, and accounting for vehicle equipment; and
- safeguarding the vehicle against theft and damage.

### **Box 1. Using a Vehicle Logbook**

All vehicle operators must receive thorough training on the importance of log books and how to complete them. A program's ability to effectively manage transport and calculate key performance indicators depends largely on the information in log books.

During each reporting period, those people who are responsible for analyzing data from log books should alert VOs to any needed corrections or improvements, and praise good work.

Though log books can be designed in different ways, they should generally be user-friendly and strong enough to withstand the physical conditions in which the vehicle is being used. Avoid poor quality paper, small columns, large books, and carbon paper. The minimum information required in a log book includes:

- The vehicle registration/identification number (filled in at the top of each page);
- a date for all entries;
- the odometer reading at the start and end of each trip;
- trip details, (i.e., a point-to-point description of the journey), including departure and destination points; drop-off and delivery points; and delays and other major incidents, including their cause, location, and duration;
- the amount of fuel added; and
- the vehicle operator's name, which identifies who is responsible for completing the log.

The log book should remain in the vehicle until it is handed to a Transport Officer (or equivalent) at the end of each reporting period.

## **2. Health and Safety**

- safely operating the vehicle; and
- following crash/incident procedures.

## **3. Vehicle Checks**

- performing daily checks and completing the vehicle defect form.

## **4. Policy Support**

- using correct forms and documents;
- being legally fit to drive and possessing a valid license;
- keeping within the regulations of the trip authority;
- not changing the authorized route; and
- not carrying unauthorized passengers.

## Management Roles

Table 1 shows list the roles and responsibilities in a TMS and thus helps determine an appropriate personnel structure for an operational management system. This table has two main columns:

1. Task: main operational management tasks.
2. Responsibilities: how tasks are assigned to the staff.

The Responsibilities column is further divided into 3 sub-columns:

1. Level: indicates whether a task needs to be performed at 'all' levels of the system or only the 'top' level. A large organization will have various operational levels, sometimes organized geographically. A smaller organization may have only a few levels.
2. Frequency: the number of times a task will be performed each year.
3. Post: the person who performs the tasks at the level and frequency indicated. The most common posts are:
  - Transport Officer (TO): a TO should be appointed for each structural level in the organization (i.e., for each district, region, province, state or HQ division).
  - Transport Assistant (TA): whereas a TO has responsibility for more than one large institution or for a large geographical area, it may be necessary to appoint a TA to support the TO. A dedicated TA may be needed if there is a lot of work; otherwise the work can be delegated to an appropriate staff member. Where there are no TA posts, the TO must carry out all tasks.
  - Transport Manager (TM): this senior transport management role may be carried out by a dedicated TM, or make up part of the duties of an appropriately competent senior manager, depending on the size of the department.
  - General Manager (GM): this role has no specific transport management duties, but transport management becomes more effective when the tasks shown in the table are included in GM job description.

As size and structure vary, so do the needs of each department. The table may be used to help find the appropriate mix of task allocation for an operating structure and to meet health service delivery needs. Once task allocation is determined, specifications and job descriptions should be drawn up.

**Table 1. Transport Management Responsibilities**

*(Note: this table concerns operational management posts. Module 3 covers the management and staffing of fleet management, and Module 5 gives a broader view of the human resource role in transport management.)*

Task	Responsibility		
	Level	Frequency	Post
Create, update, and publish the Vehicle Inventory	All	As needed	TA
Create, update, and publish the Vehicle Information Sheet	All	As needed	TA
Day-to-day operational management	All	Daily	TO
Receive Period Movement Plans	All	Every period	TO
Prepare Period Transport Schedules	All	Every period	TO
Discuss Transport Schedules with managers	All	Every period	TO
Receive and check Trip Authorities	All	As needed	TO
Prepare Seven-Day Transport Schedules	All	Weekly	TO
Review vehicle schedules	All	Daily	TO
Compare actual movements with schedules	All	Every period	TO
Report on the monitoring of plans	All	Every period	TO
Complete the Vehicle Check Sheet	All	As needed	TA
Keep and manage vehicle keys	All	As needed	TA
Keep and manage fuel cards	All	As needed	TA
Keep and manage vehicle equipment	All	As needed	TA
Keep and manage safety equipment	All	As needed	TA
Test safety equipment	All	As needed	TO
Update vehicle documents, road taxes, etc.	All	Annual	TA
Manage the off-hours posting box	All	Daily	TA
Check the validity of drivers' licenses	All	Every six months	TA
Receive Accident/Incident Reports from Vehicle Operators	All	As needed	TA
Follow up accidents and incidents	All	As needed	TO
Raise awareness about transport issues	All	As needed	TO
Analyze log sheet data	All	Every period	TA
Prepare Period Transport Reports	All	Every period	TO
Receive and check maintenance plans	All	Every period	TO

*(Continued on next page.)*



Task	Responsibility		
	Level	Frequency	Post
Maintain maintenance reports	All	As needed	TA
Perform vehicle checks	All	Frequently	TO
Provide input to transport budgeting exercises	All	Annual	TO
Monitor the transport budget	All	Every period	TO
Perform health and safety spot checks	All	Frequent	TO
Raise awareness about health and safety issues	All	As needed	TO
Request new vehicles and replacement vehicles	All	As needed	TO
Manage transport insurance	Top	As needed	TM
Make decisions regarding vehicle write-off	Top	As needed	TM
Calculate vehicle replacement levels	Top	Annual	TM
Allocate new vehicles and replacement vehicles	Top	As needed	TM
Authorize vehicle loans	Top	As needed	TM
Plan and arrange driver assessments	Top	As needed	TM
Provide feedback on vehicle performance data	Top	Quarterly	TM
Calculate ideal transport models	Top	Annual	TM
Oversee preventive maintenance	Top	Every period	TM
Oversee procurement of spare parts and equipment	Top	As needed	TM
Maintain an asset register	Top	As needed	TM
Plan capacity building activities for staff	Top	Annual	GM
Prepare Period Movement Plans	All	Every period	GM
Receive copies of Period Transport Schedules	All	Every period	GM
Authorize Trip Authorities	All	As needed	GM
Receive Period Transport Reports	Top	Every period	GM
Discuss vehicle planning issues	All	Quarterly	GM
Authorize vehicle parking at the home base	All	As needed	GM
Authorize unofficial passengers	All	As needed	GM
Prioritize vehicle allocations when shortages arise	All	As needed	GM
Authorize personal use of vehicles	All	As needed	GM
Set transport budget	Top	Annual	GM
Monitor transport budget	All	Every period	GM
Assign responsibility for transport to a member of the management team	All	Once	GM
Include transport as a regular item on meeting agendas	All	Quarterly	GM
Ensure that disciplinary procedures are documented and adhered to	All	As needed	GM
Set performance standards and indicators	Top	Every six months	GM
Devise and communicate and management structure for transport	Top	Annual	GM

## **The Transport Officer's Role**

The Transport Officer has the overarching role of ensuring that the transport system is functioning well in his or her geographic area of responsibility. Transport must become a regular agenda item for senior management meetings. At these meetings, the TO should raise major successes, problems, and failures, allowing the team to review them and develop and implement relevant recommendations.

To increase its visibility as a key agent of health service delivery, the senior management team requires feedback from users, managers, and others on the impact of transport management and performance. Merely sharing data and meeting minutes with vehicle operators and other transport staff can have a big impact on their understanding of transport and lead to important improvements.

Even small vehicle fleets will not run without someone in charge. Important management tasks include coordinating vehicle schedules (see Module 4); ordering, supplying, and managing spare parts; preparing and observing preventive maintenance schedules; and compiling fleet running statistics. The responsibility for fulfilling these requirements depends on fleet size, and all of these tasks may be performed by the TO if the fleet is small.

Regardless of the fleet size, TOs clearly have important responsibilities. TOs do not need to have prior transport experience, but should be numerate, able to perform the administrative and analytical tasks listed in Table 1 (see page 6), manage VOs well, and be senior enough to avoid being intimidated by transport users. They should be interested in transport, willing to learn management techniques, and understand the requirements for delivering health services. They should also be able to train the management team in transport management monitoring and, where necessary, advise and undertake the training of TAs, both in formal sessions and during monitoring visits.

## **Vehicle Planning: the Main Steps**

Planning mechanisms and technical procedures for all vehicle use are necessary to ensure that vehicles are used in an efficient and cost-effective manner.

Vehicle planning relies upon the cooperation and participation of everyone who manages, operates, or uses vehicles. The facility manager should appoint a Transport Officer to coordinate vehicle planning (as noted earlier, there may be only one person managing all transport responsibilities in smaller health units). TOs must have the full support and confidence of their managers to fulfill their key responsibilities including:

- analyzing trip authorities (see form in Appendix A) for authorization and correct recording of all trips;
- allocating vehicles to authorized personnel;
- negotiating with other managers who sign trip authorities for joint trips; and
- ensuring that procedures for the emergency use of vehicles are followed.

Vehicle planning follows a three-step process:

- Period Movement Plan
- Period Transport Schedule
- Seven-day Transport Schedule

## Step 1: Period Movement Plan

Reporting periods are often monthly or quarterly, but their length is ultimately decided by the transport management team. Five working days before the end of a period, all managers and regular users of transport prepare movement plans for the subsequent period using the movement plan illustrated below (see Appendix A for a blank form).

**Figure 3. Completed Period Movement Plan**

(Note: this example uses a four-week planning and reporting periods)

PERIOD MOVEMENT PLAN							
SECTION	HIV/AIDS		PERIOD	Jan 29 - Feb 26		YEAR	2009
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
WEEK 1		08:00 → 15:30					
WIC		3 people to Springfield, AIDS education program (code 4832). TV, video, and driver required					
01/29/2009							
WEEK 2			09:00 → 14:00				
WIC			1 person (code 4833). Bury West				
02/05/2009							
WEEK 3	→ 14:00						
WIC	2 people to workshop in Pretoria (code 4832). TV,						
02/12/2009							
WIC				Education day			
02/19/2009				3 Vehicles (code 4594) Needed all day			
WIC							
02/26/2009							
WIC							

Fill in program and planning period details.

Fill in details of all planned movements, the number of travelers, the responsibility code to be used on the log sheet, start and end times, and destinations.

Fill in the date of the Monday on which the week commenced.

The above form lists all planned trips, including those not yet confirmed. Details shown include proposed dates, the number of people traveling, and the places to be visited. The plan should also show if dates are fixed (e.g., for a workshop), or if they can be adjusted to fit with other movements.

All movement plans should be submitted to the Transport Officer, who will make sure all departmental managers understand that only correctly-presented plans guarantee transport for the upcoming period. The TO can then plan and coordinate movements in a way that best uses transport resources.

When the TO receives the movement plans, he or she decides if there are opportunities to gain savings by combining trips. Transport Managers should issue a trip authority form (see Figure 4 on the next page and a blank form in Appendix A) for any movement not in the plan.

**Figure 4. Completing the Trip Authority**

<b>TRIP AUTHORITY</b>			
<b>TO BE COMPLETED BY PERSON REQUESTING TRANSPORT</b>			AUTHORITY NO. <b>914</b>
START OF TRIP	DATE	<u><b>21-May-09</b></u>	TIME <u><b>8:30</b></u>
END OF TRIP	DATE	<u><b>24-May-09</b></u>	TIME <u><b>16:00</b></u>
NAME OF MAIN OPERATOR		<u><b>Nolan Rolate</b></u>	TITLE <u><b>Sr. Administration Officer</b></u>
NAMES OF PASSENGERS		<u><b>Susan Smith</b></u>	DIVISION <u><b>Child Health</b></u>
		<u><b>David Konin</b></u>	
<i>PLEASE USE AND ASTERISK (*) TO IDENTIFY ANY OF THE THE PASSENGERS WHO WILL ALSO OPERATE THE VEHICLE</i>			
PURPOSE OF TRIP (INCLUDE DETAILS OF ANY EQUIPMENT TO BE TRANSPORTED)			<u><b>Run a health course</b></u>
<u><b>for officers in De Aare and monitoring and supervision in Colesberg and Kimberley.</b></u>			
<u><b>Need to carry overhead projector and computer.</b></u>			
ITINERARY/DESTINATIONS		<u><b>Upington to De Aare / De Aare to Colesberg / Colesberg to Kimberley</b></u>	
<b>TO BE COMPLETED BY PERSONS APPROVING TRANSPORT</b>			
I HEREBY CERTIFY THAT THIS TRIP IS OFFICIAL AND THAT SUFFICIENT FUNDS EXIST TO PAY FOR IT			
TRIP RECOMMENDED/NOT RECOMMENDED		SIGNATURE	<u><b>James Pessit</b></u>
DATE	<u><b>26-Apr-09</b></u>	NAME	<u><b>J. Pessit</b></u>
TRIP AUTHORIZED/UNAUTHORIZED		SIGNATURE	<u><b>Rancall Toibalaye</b></u>
RESPONSIBILITY CODE FOR LOG SHEET		<div style="border: 1px solid black; display: inline-block; padding: 2px;"><b>GLV883</b></div>	
DATE	<u><b>27-Apr-09</b></u>	NAME	<u><b>R. Toibalaye</b></u>
<b>TO BE COMPLETED BY THE TRANSPORT OFFICER</b>			
VEHICLE REGISTRATION		VEHICLE TYPE	<u><b>Nissan Sentra</b></u>
<u><b>GCD716G</b></u>			
VEHICLE CHECK SHEET COMPLETED?		YES/NO	
VEHICLE ISSUED BY		DATE	<u><b>5/21/2009</b></u>
<u><b>H. Nakedeus</b></u>			
TRANSPORT OFFICER			
VEHICLE RECEIVED BY		DATE	<u><b>5/21/2009</b></u>
<u><b>Nolan Rolate</b></u>			
OPERATOR			

## Step 2: Period Transport Schedule

This schedule differs from the movement plan above because it is used to allocate planned trips to specific vehicles. The Transport Officer uses data from the movement plans to prepare a period transport schedule (see Figure 5 below). It is important to allocate the most suitable vehicle (e.g., a pickup truck, sedan/saloon, or motorcycle) for an activity and to ensure that a vehicle is not allocated if it is scheduled for maintenance.

**Figure 5. Completing the Period Transport Schedule**

PERIOD TRANSPORT SCHEDULE								
LOCATION	Upington Regional Health				PERIOD	2	YEAR	2009
DATE	VEHICLE REGISTRATION							
	6CD7166	6BF3826	6DB1286	9846				
01/29	Kelmoes and near-							
01/30	by areas. Back at 12:00.							
01/31		Dr. Smith clinic run						
02/01		Env. Health Local	Dr. Smith clinic run	Service type C				
02/02		Dr. Smith clinic run		Comm. Meeting (PM)				
02/03								
02/04								
02/05								
02/06		Kelmoes		1- Air service 2- Clinic support with driver				
02/07	Service type B at	Kimberly	Maternal health in					
02/08	Toyota dealer	Kimberly	Maravel. Leave at 6:00, back at 12:00.					
02/09								
02/10								
02/11								

**Annotations:**

- Fill in office details and dates.** (Points to LOCATION, PERIOD, YEAR)
- Fill in registration numbers and copy them on a weekly basis to xxx. Both forms have spaces for 8 different vehicles.** (Points to VEHICLE REGISTRATION header)
- Shade in weekends for easier planning.** (Points to shaded weekend rows 02/03-02/04 and 02/10-02/11)
- Fill in all available information from vehicle requests that have been received. Maintenance information should appear first.** (Points to activity entries)

Again, trips should be combined if possible so that vehicles travel full. This requires managers to be flexible in allocating dates for trips. However, transport should ultimately be allocated based on service delivery priorities and the urgency of the work.

After completing the transport schedule, the TO should make a copy for senior management and display another copy in the transport office. The TO may need to present the period transport schedule to senior managers if there is an insufficient number of vehicles for planned activities or if there is an emergency. It is then up to these managers to prioritize allocation in line with organizational objectives.

Because the schedule covers several weeks, there will certainly be changes. The TO keeps the schedule up to date and communicates changes to all concerned.

### Step 3: Seven-day Transport Schedule

On the last day of the working week, the Transport Officer prepares the seven-day transport schedule (a completed example is shown in Figure 6 below). The purpose of this schedule is to give the most up-to-date information possible about planned trips and the vehicles to be used on them.

This detailed vehicle plan for the week ahead is drawn up from the period transport schedule. The TO should update both the seven-day and period transport schedules on a daily basis to reflect new trip authorities and other changes. For new requests and changes, ask other managers to give as much notice as possible. The seven-day schedule should be displayed next to the period schedule in the transport office.

The fact that work plans are not fully known when planning is no reason to avoid planning. It is always easier to change a written plan than to react to requests on a moment-by-moment basis. Advance planning helps identify potential problems and enables appropriate actions to be taken on-time.

**Figure 6. Completing the Seven-day Transport Schedule**

SEVEN DAY TRANSPORT SCHEDULE - WEEK COMMENCING							
LOCATION	Upington Regional Health		PREPARED BY	Transport Officer		DATE 1/31/09	
VEHICLE REGISTRATION	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
GC0716G Sedan				Service type B. Toyota Dealer NS break check and wheel alignment			
G8F382G Sedan		Kimberly date entry	Kelmoes comm. meeting				
GD8128G Mini-Bus	Return from Dearre at 12:00		Maternal health project Marydale. Leave 0600, arrive 1800 each day. Combined with monitoring trip by administrator.				
988G Pick-up Truck		Air service support airport at Bam Clinics in Kenhardt and Zwartkop. Driver needed.					

Fill in office details and dates.

Include the vehicle type with the registration number.

Fill in details on vehicle bookings. Allocate each trip to the most appropriate available vehicle. Make sure all service and maintenance requirements are entered first. Be prepared to make changes to the plan as requirements change.

Keep a copy of the schedule at the start of the week. Keep updating as you go through the week and display the up-to-date schedule on the transport office wall.

## **Vehicle Planning: Other Procedures**

### **Issue and Return of Vehicles**

The vehicle check sheet (see form in Appendix A) is an important management tool that shows responsibility for the vehicle, and all documentation and equipment as it passes from one authorized user to another.

Whenever a vehicle is provided for a trip outside the normal workstation, the Transport Officer and the driver complete and sign the 'issue' section of the vehicle check sheet. The TO keeps the completed form in the vehicle file until the vehicle is returned, at which time the TO and driver complete and sign the right-hand column of the same form.

Any problems found with the vehicle immediately before starting, during, or after completing a journey should be noted by the driver on the vehicle defect form, which is given to the TO as soon as possible. In the case of serious problems, the vehicle should be taken out of service for maintenance (discussed in Module 3).

### **Monitoring Results**

At the end of each week and period, the TO compares actual transport movements with what was planned, noting everything that affected the schedule. They record successes and achievements as well as problems. The transport office's copy of the schedule can be used to track any unplanned changes.

The TO should also keep records of how many transport requests there were for the period, when they were made, and the forms that were used. From this, the percentage of satisfied requests can be calculated. Together with an analysis of the planning process, this information should be presented to senior management in the form of a written period transport report (see form in Appendix A).

By applying the planning steps and gathering information through monitoring, it is possible to improve transport efficiency. And, by continually applying this process and learning from the results, higher levels of service delivery performance can be achieved.

## **Operational Controls**

Operational controls link staff management activities and vehicle management planning through Standard Operating Procedures (SOPs). To make a TMS work, it is necessary to develop Standard Operating Procedures (SOPs) that are specific to each component of the system and to include them in the overall transport policy (see Module 9 for information on policy development).

In practice, the overall policy will be developed before any specific components of the TMS, including the SOPs for operational management detailed below.

### **Standard Operating Procedures (SOPs)**

An SOP is simply a document that states how specific activities should be carried out. All SOPs should be kept in a file wherever vehicles are located and made accessible to all staff members.

Below is a summary list of the specific types of SOPs. The size and complexity of an organization will determine exactly which SOPs are appropriate.

## **1. Human Resources**

The human resources policy should establish the personnel structure for all aspects of transport management. It must ensure that responsibilities for tasks are defined. SOPs include:

- local human resource organizational charts;
- the names of staff members working in specific posts related to transport management; and
- job descriptions for these posts.

## **2. Allocation**

The vehicle allocation policy should comprise procedures for vehicle assignment, including specific guidelines for new vehicles. The policy should also cover decommissioning vehicles that should no longer be used. SOPs include:

- arrangements and procedures for pooling transport;
- the location of the vehicle inventory record;
- the instructions and standards for completing the vehicle inventory record (see form in Appendix A);
- the names of staff members responsible for updating and publishing inventory records;
- the location of files for vehicle information sheets (see form in Appendix A);
- instructions and standards for completing vehicle information sheets; and
- the names of staff members responsible for completing and filing vehicle information sheets.

## **3. Usage Planning**

The vehicle usage planning policy should define clear guidelines for the procedures and responsibilities involved in vehicle planning. This includes mandatory use of the period movement plan, the trip authority, the period transport schedule, and the seven-day transport schedule. SOPs include:

- the names of staff members responsible for preparing the movement plan and how to present it to those who are responsible for transport planning;
- the names of staff members responsible for completing trip authorities;
- the names of staff members responsible for preparing and publishing transport schedules;
- instructions and standards for completing transport schedules;
- the names of staff members responsible for filing the above forms and the file locations; and
- delegation of authority of these tasks if the lead person is not available.

## **4. Use and Loans**

The vehicle use and loan policy should make clear who may operate a vehicle and refer to the mandatory use of trip authorities. It should include statements regarding personal use of official vehicles and official use of personal vehicles; procedures for exceptional circumstances, such as



emergency use or vehicles based away from the main site; and a statement about the conditions for loaning a vehicle to another department or organization. SOPs include:

- restrictions on operation and use of vehicles by non-employees due to insurance requirements or other reasons (when these are not explicitly stated in the policy);
- use of vehicles for employee transport to and from their place of work;
- location of files with copies of drivers' licenses;
- arrangements for driving assessments;
- details of sites where vehicles may be temporarily based away from the main site; and
- the name of the manager who is responsible for transport and who may authorize a loan, when the policy permits such.

## **5. Issuing Vehicles**

The vehicle issuing policy should comprise clear statements about issuing and returning vehicles, including the mandatory use of the vehicle check sheet, and responsibilities for log sheets, keys, and vehicle equipment. SOPs include:

- the names of staff members responsible for check sheet completion and filing, as well as the file location;
- the names of staff members responsible for keys, vehicle equipment, and spare key sets, as well as where they are kept;
- procedures and responsibilities for keys of vehicles that are returned outside of normal hours and the location of the posting box; and
- procedures for processing expenditure receipts for transport costs incurred during a trip, such as puncture repair.

## **6. Fueling**

The vehicle fueling policy should cover fuel suppliers, documents to be used for fuel requisition and issue, and responsibilities for fuel vouchers and cards (if applicable). SOPs include:

- locations of suppliers' fuel stations;
- the names of staff members responsible for fuel issue document completion, authorization, and filing, as well as the file location;
- instructions and standards for completing the fuel issue document; and
- the names of staff members responsible for fuel cards, as well as the location of the cards when they are not in use.

**Box 2. How fuel is issued**

How you plan for and manage the purchase and supply of fuel is an essential part of operational management. Fuel is a significant factor in vehicle running costs, thus it is essential to closely monitor consumption in order to detect any cases of misuse.

You may want to make a contract with a fuel supplier that has outlets throughout the area where you operate. One supplier is easier to monitor than several, so long as this gives you adequate coverage in terms of time or location. Your supplier must provide evidence to fully support its invoices so that you can cross-check information with fuel issue vouchers and vehicle logs. Negotiate with the supplier to provide information at the same intervals, and for the same reporting periods you use. You will always need a voucher system that:

- a. authorizes a specified supplier to provide a specified type and quantity of fuel to a particular vehicle with a named driver on a given date;
- b. registers the odometer reading at the time of fuel supply;
- c. registers the fuel cost per unit and total cost; and
- d. registers the signature of the person who delivered the fuel.

The voucher must be used each time fuel is supplied to a vehicle and should include one copy for your records and another to be kept by the supplier. Ideally, the supplier will give a form reference number for each transaction invoiced and also supply their copy of the voucher as supporting evidence. This helps to avoid double-billing.

Check all information on your voucher copies, supporting copies and the supplier's account. Check the vehicle log to ensure that fleet statistics are correct and that drivers and the supplier correctly complete the documents. This must be done before you write the period transport report, in which the analysis should be documented.

**7. Safety**

The vehicle safety policy should provide specific details about the safe operation of vehicles and crash/incident reporting, including the mandatory use of the Crash/Incident Report and the Crash/Incident Follow-up Report (see forms in Appendix A). These may be detailed as part of a health and safety policy. SOPs include:

- the names of staff members responsible for safety equipment and the location of the equipment;
- local insurance arrangements, including requirements and exceptions;
- the names of staff members responsible for dealing with crashes and insurance;
- local vehicle recovery arrangements;
- contact details of local emergency services (police, fire, rescue, health); and
- how to report an incident/crash.

**8. Passengers**

The passenger policy should provide guidance for the transport of passengers in a vehicle that is owned, operated, or managed by the department. SOPs include:

- a waiver or indemnity form to be signed by passengers (if such a document is legally recognized); and
- instructions and standards for completing the waiver or indemnity form.

## **9. Log Book (or Log Sheet)**

The log book policy dictates the mandatory use of the vehicle log book. It should detail responsibilities for the analysis of log sheet data and subsequent reporting, and highlight the importance of having a working vehicle odometer. SOPs include:

- a standardized log sheet format, if not specified in policy;
- instructions and standards for completing the log sheet format;
- information on where to obtain printed log sheets;
- the names of staff members responsible for analyzing, reporting and filing log sheet data; and
- the location of log sheet data files.

## **10. Parking**

The parking policy defines rules for parking vehicles that are not in use and specific responsibilities for allocating and managing approved parking. This should include parking away from the site where vehicles are normally based and any specific conditions that apply. SOPs include:

- the names of staff members responsible for allocating and managing approved parking; and
- details of any exceptions that apply.

## **11. Identification**

The vehicle identification comprises guidance on identification markings to be displayed on vehicles. SOPs include:

- local methods of vehicle identification, if not specified in the policy; and
- the names of staff members responsible for applying and managing vehicle identification.

# **Case Study**

## **Poorly Defined Responsibilities Versus a Well Managed Fleet**

### **Scenario I**

In the Yaruba Province of Karobia, Mr. Mulenga, the District Transport Officer, was often on the telephone arranging transport, reminding drivers to complete log books, telling mechanics to service vehicles, and receiving calls from health staff who wanted vehicles for monitoring visits in rural areas.

Mr. Mulenga was responsible for a fleet of 30 vehicles within his district. Every month he failed to submit his monthly transport report to the National Transport Manager, who was already unhappy with the District Transport Officers underneath him because it seemed like they weren't doing their jobs. Once, the National Transport Manager confronted Mr. Mulenga about not submitting reports. Mr. Mulenga replied that he worked very hard, but was unclear about his responsibilities.

## Scenario 2

Ismail is the National Transport Manager in the country of Farouk. He is responsible for 1,300 vehicles. Of course, he doesn't manage each one individually. He has recruited district transport officers who report to provincial transport officers and, in turn, who notify Ismail of any major problems.

Weekly meetings are held at all levels of the system to discuss transport needs for the coming weeks. Planning tools including period transport schedules and seven-day vehicle plans help transport staff at all levels of the system effectively manage their limited resources. National Immunization Days and other events that require a lot of transport are always put into the transport plans at an early stage so other activities requiring transport can be scheduled around them.

In Farouk, all staff members have clear job descriptions and a table showing their roles and responsibilities is on display in each Transport Office.

In the *About this Guide* section of this document, it was suggested that you consider the following questions after reading each case study:

- How does this case study compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far? (to be considered in subsequent modules)

## **Self Assessment**

1. What operational roles are known by the following acronyms: VO, TA, TO, TM, and GM?
2. Using no more than 2-3 paragraphs, explain what Standard Operating Procedures (SOPs) are.
3. Explain the three steps involved in vehicle planning: (Step 1) Period movement plan, (Step 2) Period transport schedule, and (Step 3) Seven-day transport schedule.

## Self Assessment Answers

1. What operational roles are known by the following acronyms: VO, TA, TO, TM, and GM?
  - VO = Vehicle Operator
  - TA = Transport Assistant
  - TO = Transport Officer
  - TM = Transport Manager
  - GM = General Manager
2. Using no more than 2-3 paragraphs, explain what Standard Operating Procedures (SOPs) are.
  - Your answer should explain that SOPs state how specific activities should be carried out. The answer should also note that the size and complexity of an organization will determine exactly which SOPs are appropriate, including: human resources, allocation, usage planning, use and loans, issuing vehicles, fueling, safety, passengers, log books (or log sheets), parking, and identification.
3. Explain the three steps involved in vehicle planning: (Step 1) Period movement plan, (Step 2) Period transport schedule, and (Step 3) Seven-day transport schedule.
  - Period movement plan: a plan that details proposed dates, the number of people traveling, and the places to be visited. The plan should also show if dates are fixed (e.g., for a workshop), or if they can be adjusted to fit with other movements.
  - Period transport schedule: a schedule used to allocate planned trips to specific vehicles.
  - Seven-day transport schedule: a schedule used to give the most up-to-date information possible about planned trips and the vehicles to be used on them, including updates (as often as daily) that reflect changes to the period transport schedule.

# Module 2. Financial Management

## Introduction

By the end of this module you will be able to:

- understand why financial management is important for TMS in health service delivery;
- link financial management to other components of TMS;
- work out the best economic point of replacement for a vehicle;
- accurately determine budgets that will control transport costs; and
- use a trading account to pay for transport costs more effectively.

## Transport Finance Vision

Having a financial vision that covers all parts of a TMS and includes future needs is essential to making accurate cost estimates for delivering effective and efficient transport services for health.

The size of a transport fleet is usually defined by the amount of money available. The cost of purchasing vehicles (i.e., the initial capital cost) makes up a large part of the transport budget for health services and often a large part of the overall budget. But, it will obviously be necessary to also incur costs to maintain and protect vehicles after they have been purchased. These costs include—

- Depreciation, which is used to determine financing requirements for replacing a vehicle at the end of its economically viable life.
- Fixed costs (which do not vary with the level of activity), including annual vehicle licenses, taxes, and insurance.
- Variable costs (which vary based on vehicle use), including—
  - Running costs (i.e., costs related to the distance a vehicle travels): fuel, maintenance, and tires.
  - Indirect costs (i.e., costs that do not affect running costs): crashes, breakdowns, and fines.
- Human resource costs, including:
  - Fixed costs, such as salaries.
  - Variable costs, like per diem.

There are three steps involved in creating a transport finance vision—

1. Looking at historical data and the results of estimating the ‘ideal fleet’ model (to be discussed in Module 7).
2. Calculating estimated expenditure and income resulting from:
  - the disposal and replacement of worn out, excess, or inappropriate vehicles;
  - the purchase of any additional vehicles; and
  - meeting the fixed, variable, and human resource costs of the ideal fleet.

An expenditure and income plan should be prepared for the entire department, based on a long-term (five to ten years), comprehensive view. The plan will include all of the cost factors listed above and will link to organizational goals, aims, and objectives.

3. Identifying potential funding shortfalls to be covered using expected income by:
  - defining a transport finance vision (using information from steps 1 and 2) that allows the organization to meet its transport service delivery goals, aims, and objectives for the planning period; and
  - indicating potential funding shortfalls against the probable funding pattern and identifying possible income strategies to meet those shortfalls.

An organization must obviously be able to afford its plan with available financing or show how financing will need to increase. Clearly articulating a vision and related needs provides a strong platform for justifying internal and external financial support.

## Replacing Vehicles

Depreciation is the loss in value of a vehicle that occurs as the vehicle gets used over the course of its lifetime. In transport management, depreciation is calculated based on the number of kilometers the vehicle has traveled rather than the number of years it has been in service.

To decide when to replace a vehicle, it is first necessary to measure the depreciation cost. The best way to calculate depreciation is to use a simple formula that divides the replacement cost of a vehicle by its expected economically viable life (measured in kilometers traveled). Box 3 provides an example.

### Box 3. Calculating Depreciation Cost

#### Formula

Vehicle replacement cost ÷ economically viable life (km traveled) = depreciation cost (per km)

#### Example

For a vehicle whose replacement cost is USD20,000

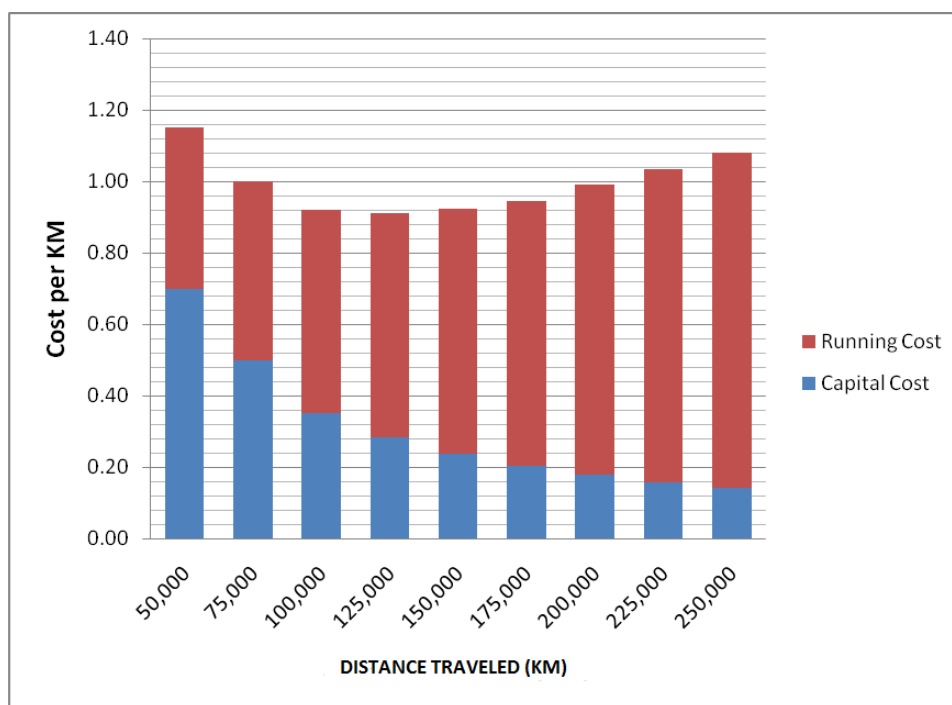
- $20,000 \div 100,000 \text{ km} = \text{USD } 0.20$
- $20,000 \div 150,000 \text{ km} = \text{USD } 0.13$
- $20,000 \div 200,000 \text{ km} = \text{USD } 0.10$
- $20,000 \div 250,000 \text{ km} = \text{USD } 0.08$



Although depreciation costs go down as the economically viable life increases (i.e., the number of kilometers driven increases), running costs increase as more kilometers are traveled because more complex maintenance is needed and, in addition, fuel efficiency decreases. Taking these factors into account, it is possible to estimate a vehicle's expected life to determine the point at which the all-inclusive cost per km (i.e., running costs + depreciation) will be at its lowest.

Figure 7 shows how the all-inclusive cost per km changes over time. The depreciation (capital) cost becomes a gradual downward slope as more kilometers are traveled. Running costs soon start to rise gradually. At 125,000km, the all-inclusive cost is at its lowest. The graph then begins an upward slope, thus signaling the point at which the vehicle is at the end of its economically viable life.

**Figure 7. All-inclusive/km Costs Over Time**



Calculating and documenting a vehicle's best replacement point should be required by and referred to in an organization's transport policy. These figures can vary dramatically according to operating conditions and which vehicles are used. The number of kilometers traveled, and not time, should be used as the primary indicator for projecting the possible replacement of vehicles, and for planning and budgeting purposes. Then, other factors that affect the number of kilometers traveled should be taken into account, including the type of vehicle, the maintenance schedule, and typical driving conditions. The actual economic point of vehicle replacement depends on many variables, including:

- the capital cost of the vehicle, which is affected by whether the vehicle is imported, if cash is required for purchase, and if import duties are payable;
- the cost of vehicle maintenance, which varies based on such factors as whether cheaper, good-quality spare parts are locally available, and the level of labor costs (which can increase maintenance costs by nearly 100% in some countries);

- performing regular preventive maintenance instead of only after a breakdown occurs (the lack of regular preventive maintenance can reduce the life of a vehicle by about 50%); and
- the cost of fuel (the relative costs and availability of fuel types must be calculated).

There are two ways to decide when to replace a vehicle:

1. Set a maintenance cost/km limit. This should be equal to the maintenance cost/km at the point on the graph where the total cost/km is at its lowest. When the maintenance cost reaches this point, plan to replace the vehicle the next time major repair needs arise. Box 5 shows a real instance reported in a provincial situational analysis. It clearly shows the cost of failing to remove vehicles that are beyond economic repair from the fleet.
2. Determine when the running cost/km of a vehicle is higher than the all-inclusive cost/km of a replacement vehicle.

#### **Box 4. Vehicle Replacement in a Ministry of Health**

This real example shows why distance traveled and cost/availability data (but not vehicle age) should be used to determine the ideal replacement point.

##### Region A vehicles

Average age = 9 years

Availability = 98%

Running cost = USD 0.04/km

Average km = 91,000

##### Region B vehicles

Average age = 5 years

Availability = 91%

Running cost = USD 0.06/km

Average km = 160,000

Although Region B's fleet is almost half the age of Region A's, it will need replacement sooner. This is because the cost per km in Region B is higher and vehicle availability is lower (due to the need for more frequent maintenance).

The running costs of a vehicle should be included in the vehicle file and in the period transport report (see form in Appendix A). Work out a fair cost from averages over several periods. Calculate the all inclusive cost/km of a replacement vehicle using projected depreciation and running cost values.

The expected life in kilometers and projected running costs are estimated from management information for vehicles of the same type. Information about vehicle capital and labor costs should be available locally. (More detail on determining all-inclusive costs is provided in the next section of this module.)

A recommendation to replace a vehicle should always originate from the location or level at which the vehicle is managed. Every organization defines the management level that makes final decisions about vehicle replacement. If a vehicle appears to be beyond economic repair before its expected

replacement date, a request to replace and dispose of it should be supported by appropriate management information and estimated repair costs.

Recommendations for the procurement of new vehicles must also be supported. For both replacement and additional vehicles, the management team should be provided with use, availability, and needs satisfaction indicators for the whole fleet.

In the case of a replacement vehicle, it is essential to include the running cost/km of the vehicle being replaced. When requesting expansion of a vehicle fleet, it is necessary to describe the work that additional vehicles will support and expected resulting improvements in the delivery of health services. Provide evidence of sufficient budget to support all costs of any additional vehicle supplied.

#### **Box 5. Excerpt from a Report on Fleet Vehicle Replacement Costs**

*...This had resulted in very bad decisions that cost the MOH a lot of unnecessary expenditure and put dangerous vehicles back in service. One vehicle, which was worth no more than USD1,500 was repaired at a cost of USD8,000 and took two years to repair. This vehicle should have been written off.*

## **Annual Budget and Core Financial Management**

The more aware Transport Officers are of the financial implications involved in the actions they take, the better placed they are to make effective decisions. This is best achieved by actively participating in budget planning and monitoring, and authorizing transactions; instead of completely shifting these activities to finance staff.

Setting an annual budget for transport provides an opportunity to monitor and update the organization's transport vision. Budget planning should include everyone who manages activities that have an impact on transport costs, which ultimately ensures that the final budget will express the aims and intentions of the whole team.

The team that participates in budget setting should also be responsible for regular budget monitoring. For every reporting period, all team members should compare what actually happened financially with what was planned. In a fully functioning transport management system, the period transport report provides detailed evidence of what really occurred.

Budget setting and monitoring should be delegated to the appropriate management level, and delegated managers should have easy access to information needed for budget calculations and estimates.

Delegated managers are then responsible for managing and monitoring their budgets throughout the year. Some managers will need training to do this properly. Clearly defining the parameters of budget roles delegated to them will help avoid errors and misunderstandings.

### **What to Include in the Budget**

The all-inclusive cost per kilometer is the most effective means of budgeting for transport. (It is also specifically useful when planning to replace a vehicle, as will be discussed in Module 7). The most significant elements to always include in this cost are depreciation and running costs.

Other costs, except capital (met through depreciation) and indirect costs (which are dealt with differently), can be included in the all-inclusive cost/km when sufficient data is available to do so. Costs that are not included must be budgeted separately. Whatever cost formula is used, it is important that it be used consistently across the organization so that similar items are always comparable.

Most transport staff members know the travel distances required to perform certain tasks (e.g., a round-trip to collect HIV/AIDS drugs from the central store). Multiplying the distance in km by the all-inclusive cost/km allows calculation of the true cost of the trip, ultimately providing a realistic sum for budgeting or charging against another account (e.g., the transport user's account).

There is a large range of standard budgeting software and other tools available to facilitate budgeting and monitoring. Organizations with a finance section or a finance officer are probably already using such tools and can indicate which they have chosen.

## **The Utility of a Trading Account**

Having users pay for transport costs through an all-inclusive per kilometer charge is a good way of managing financial resources. Using this approach together with a trading account (a bank account dedicated to transport) will reduce the worry of needing to find capital each time a vehicle must be replaced and it can also cut down on maintenance delays that occur when cash is not available for immediate settlement of garage bills.

Accounts can be used to pay for in-house or out-sourced fleet maintenance (see Module 3) and can also help better meet donor funding needs. The transparency of an all-inclusive charge/account-based system means that donors can more easily fund transport costs because they will be doing so on a per kilometer basis, rather than by supplying expensive, dedicated vehicles that may not be used for their intended purpose. The following steps can guide the set-up and use of a trading account—

1. Calculate the all inclusive cost/km for each vehicle.
2. Set up a dedicated transport cost trading account in the organization's finance system.
3. If departmental policy allows, consider putting start-up capital into the account through the once-only sale of uneconomic vehicles.
4. Budget travel at the all-inclusive cost/km. Transport users then pay into the trading account at this rate (all-inclusive cost multiplied by km traveled).
5. Pay all transport costs that make up the all-inclusive cost/km from this account.
6. Pay for replacement vehicles from this account (remember: depreciation has been allowed for in the costing).
7. Do not pay for additional vehicles from the account; they must be budgeted for and funded separately.
8. If policy allows, when vehicles reach the end of their service life, deposit the income from their sale back into the account. Note that this reduces the depreciation value and thus also reduces the all-inclusive cost/km.

## Case Studies

### How Difficulties Arise if Transport Funds Come from the Administrative Budget

Many health ministries and drug distribution organizations do not have a separate budget line for transport costs. Instead, there may be a general administration budget that covers a wide range of activities, including paying staff allowances, buying stationery, and supporting all transport activities.

When general budgets include transport costs, it becomes very difficult to ensure that money intended for transport is actually used for transport. Too often, money is diverted from transport (or another area) to meet more immediate priorities. At the same time, it is also very difficult to monitor the disbursement of area-specific funds against the original budget.

There was only a general administration budget in the Zomba District in Birani. The Zomba District Health Department had very carefully calculated the running costs of their fleet, including spare parts, fuel, and maintenance. It had even budgeted for driver training each year.

Last year, a mistake in calculating salaries meant that some of the administrative budget had to be taken to pay the wages of four staff members. Nine months into the financial year, the budget was running low, precisely when six of the vehicles required a full service.

With no money to service the vehicles, small mechanical problems became bigger. The air filters became blocked and fuel consumption increased. Eventually, two vehicles were taken out of service when there was no money to purchase new tires.

### How Budgeting without Considering Fuel and Maintenance Leads to Problems

In the Central Medical Stores in Birani, the accounting system was designed to include a separate budget for transport costs. Unfortunately, the focus of the budget each year was on buying new vehicles rather than on operating and maintaining the existing fleet. The Medical Stores realized that expenditures were far greater than what had been planned in the annual transport budget.

After an investigation, it became clear that the maintenance and fuel budgets had been estimated without using realistic data. For example, the total fuel budget for a fleet of 10 vehicles was USD10,000. Each vehicle had a fuel consumption rate of about 10 km per liter and fuel in Birani cost USD1 per liter.

Within the USD1,000 per vehicle fuel budget, it was only possible for each to travel 10,000km in a year; or about 835km each month. In reality, the vehicles traveled an average of 2500km per month to deliver medicines and supplies to the district health facilities; a fact that had always been very well-known.

- How do these case studies compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far?



## Self Assessment

1. What are the two components of the all-inclusive cost per km?
2. What is the name for an account used to manage transport so that costs are charged to individual departments on an all-inclusive cost per km basis? Briefly explain the benefits of having such an account.
3. Calculate the depreciation cost per km for a USD40,000 vehicle expected to travel 150,000km. (Show your calculation method and the answer.)
4. Name the four greatest influences on the economic point of replacement.
5. Write a 2 short 'transport finance vision' for your organization.

## Self Assessment Answers

1. What are the two components of the all-inclusive cost per km?
  - Depreciation
  - Running cost
2. What is the name for an account used to manage transport so that costs are charged to individual departments on an all-inclusive cost per km basis? Briefly explain the benefits of having such an account.
  - Trading account
3. Calculate the depreciation cost per km for a USD40,000 vehicle expected to travel 150,000km. (Show your calculation method and the answer.)
  - $40,000 \text{ (Vehicle replacement cost)} \div 150,000 \text{ (economically viable life/km traveled)} = \text{USD } 0.27 \text{ (depreciation cost per km)}$
4. Name the four greatest influences on the economic point of replacement.
  - Capital cost of the vehicle
  - Cost of vehicle maintenance
  - Planned Preventative Maintenance
  - Cost of fuel
5. Write a short 'transport finance vision' for your organization.
  - Your transport finance vision should take three steps into account: (1) Looking at historical data and the results of estimating the 'ideal fleet' model; (2) calculating estimated expenditure and income, and; (3) identifying potential funding shortfalls to be covered using expected income.



# Module 3. Fleet Management

## Introduction

By the end of this module you will be able to:

- avoid unnecessary vehicle breakdowns;
- improve the use of a fleet and prolong its working life;
- identify basic operational and technical specifications to choose the best vehicles for a fleet;
- recognize the importance of regularly planned vehicle maintenance;
- use and develop key maintenance schedules;
- manage maintenance activities and the personnel responsible for them; and
- safely, effectively, and efficiently manage the distribution and delivery of supplies.

Although achieving an ‘ideal fleet’ is rare (and even ideal fleets do not remain that way for very long), it is worth striving for such a goal because the ability to objectively compare actual performance to ideal indicators is a key part of effective management.

Good management means making the best use of vehicles to meet a department’s priorities. This chapter covers the composition of a fleet and its mechanical functioning and condition. It will also discuss how to best use a fleet to make sure that health supplies, vehicle operators, and passengers arrive at their destinations safely, efficiently, and on time.

## Specification, Selection, and Procurement of Vehicles

In fleets of all sizes, vehicles need to be replaced from time to time. In the context of national fleet management, this is an ongoing process. For smaller fleets, replacement occurs less often.

Regardless of the context, the process involves the same steps—

1. Defining operational specifications (i.e., the conditions under which the vehicles operate and their purpose).
2. Defining the technical specifications of vehicles to meet those needs.
3. Selecting the best vehicles at the best price to meet those needs.

Too often, public health organizations assume that all of their activities require 4-wheel drive, double cab pick-up trucks, which are generally two times more expensive to procure than sedans and three times more expensive to run. Particularly in countries with more developed road networks, many of an organization’s basic administrative tasks (e.g., mail distribution) and other activities do not involve travel to areas where only 4-wheel drive vehicles can navigate.

The vehicle requirements for most activities are clear—

- Administrative tasks can almost always be carried out using sedans, which may be supplemented by off-road vehicles from an organization's other departments on an ad hoc basis, when necessary.
- Monitoring often requires off-road travel. However, before an organization procures a 4-wheel drive vehicle for this purpose, it is essential to assess what proportion of the vehicle's time will be spent off-road, and whether off-road conditions are such that they require 4-wheel drive.
- Ambulance services can be carried out in a variety of vehicle types, ranging from sedans to high-ground clearance 4-wheel drive vehicles. As with other activities, specific usage conditions should be assessed before procuring vehicles for patient transport.
- Drug distribution may require many different types of vehicles, depending factors such as—
  - Access restrictions – some delivery locations will require smaller vehicles.
  - Delivery volume – depending on the type of commodities being distributed, the number of delivery points being serviced and the ordering frequency will vary.
  - Loading practices – some central medical stores prefer to load vehicles from the side, in which case a curtain-sided vehicle will be more appropriate.
  - Cold chain requirements- vehicles that are adapted for refrigeration or cold storage will be needed when vaccines and other special commodities are transported.

## **Operational Specifications**

As shown above, vehicles are not only a means for transporting health commodities, but are often used for providing services. For example, successful mobile immunization delivery, case referral, and direct-to-client drug distribution all rely on appropriate vehicles.

In consultation with service users, consider the following factors to identify the main use of a vehicle—

- Are vehicles used mainly for carrying goods, carrying people, or for special requirements (e.g., ambulance transport, vaccine transport, transport of people with special needs); or some combination of these?
- On what road conditions are vehicles mostly driven?
- Who is the main operator?
- What is the typical distance traveled per month?
- What maintenance facilities are available?
- What is the budget for purchase and running costs?

## Technical Specifications

Operational specifications described above help determine the best type and combination of vehicles to purchase, including motorcycles, sedans, twin cabs, pick-ups, 4 x 4s, etc. Factors to consider include the following technical specifications—

- Body type.
- Carrying capacity and seating configuration.
- Ground clearance.
- Fuel type (diesel or gasoline).
- Engine size.
- Ancillary and safety equipment (e.g., power winch, engine air intake mechanism, air conditioning, radio, and special communications equipment).
- Availability of trained operators or training for specialized equipment.
- Price and availability.

## Vehicle Selection

Most importantly, purchase decisions must also take into account—

- Policies regarding the standardization of fleets.
- The vehicle makes that are best supported in-country with spare parts and servicing, including relative costs.
- Feedback from users on different makes and models.
- Delivery time.
- Additional costs (e.g., shipping and import duties)
- The availability and feasibility of warranty support (e.g., would a vehicle be stationed many kilometers away from the main dealer providing servicing under a warranty?).

## Considerations for the Purchase and Use of Motorcycles

Motorcycles can be a cost-effective, safe, and efficient form of transport. Their usefulness not only relies on choosing an appropriate make and model, but also on thoroughly training riders in safe riding techniques, using crash helmets and protective clothing at all times, and having riders perform daily mechanical checks.

**Without meeting all of the above conditions, motorcycles can be extremely dangerous to ride, will quickly break down, and will be a considerable waste of money.**

Given the capability to meet the above motorcycle criteria, the following points are important:—

- Choose a four-stroke engine instead of a two-stroke engine because two stroke engines typically wear faster, have shorter engine life, and are less fuel efficient.
- Purchase high quality makes of motorcycles (not cheap ‘look-alike’ versions).

- Purchase off-road specification motorcycles, especially for use in areas without paved roads.
- Ensure that the necessary resources to train riders are available in-house or identify a specialized provider that can train riders and in-house trainers.

## **Maintenance and Repair of Vehicles**

Facilities to undertake maintenance and repair vehicles may exist in-house, or may be outsourced (in part or in whole) to private garages or to another department or Ministry. Departments operating a vehicle must:

- understand all requirements necessary for effective maintenance and schedule routine maintenance;
- be able to manage and assure the quality of work undertaken by outsider providers; and
- ensure that each vehicle operator performs routine daily checks on vehicles and reports faults that require attention.

## **Planned Preventive Maintenance**

Using a system for preventive maintenance is essential, regardless of the age and quality of a fleet. Planned preventive maintenance (PPM) comprises investing in maintenance to avoid breakdown, increase the reliability of vehicles, and reduce overall running costs. It means periodically taking vehicles off the road to replace oil, fluids, and grease; checking for wear-and-tear on moving components; and replacing components according to the manufacturer's recommendations and regular inspections. This is made possible through daily checks, defect identification, and regular servicing.

## **Daily Checks**

Every vehicle should be checked at the beginning of each day. If the vehicles are pooled, the Transport Officer should undertake the checks before daily allocation. If a vehicle is allocated to a single operator, the operator will carry out the check.

Daily checks inform maintenance procedures to be performed by the operator (e.g., topping up oil, radiator coolant levels, and windshield washer bottles, as well as checking windshield wipers and ensuring proper tire pressure). All lights should work correctly, even if the vehicle is not expected to be operated at night.

For motorcycle riders, these procedures could include lubricating and adjusting chains and handlebar levers. Each vehicle will have its own checklist because different vehicles and motorcycles have separate requirements. Figures 8 and 9 provide examples of vehicle check lists.

**Figure 8. Motorcycle Daily Checks and Service Schedule**

### **Step 1. Daily Checks**

Step 1 checks should be performed by Vehicle Operators.

- **Petrol:** make sure the fuel tank has a sufficient amount of fuel.
- **Lubrication:** lubricate the engine and chain with oil
- **Adjustment:** adjust the chain and handlebar levers
- **Nuts and bolts:** all nuts and bolts should be tight
- **Stop:** brakes and tires should be in working order

### **Step 2. Every 1,000 Kilometers**

Ideally, the transport manager should inspect all motorcycles every 1,000 kilometers, after which step 2 service should be performed. Vehicle operators usually do not conduct Step 2 service, but may need to learn to do so (with the proper tools) if inspection by a manager every 1,000 kilometers is not possible. The person performing step 2 maintenance should:

- Clean and oil air filters
- Clean the fuel system (carburetor and fuel filter)
- Clean and adjust spark plugs
- Check spoke tension
- Check and adjust tire pressure, chains, sprockets, and brakes
- Check tire wear
- Check battery levels and condition (batteries should last 18 months)
- Check lights and electronic components

### **Step 3. Every 6,000 Kilometers**

A qualified, trained motorcycle mechanic should perform step 3 maintenance, as well as all remaining steps. The person conducting step 3 maintenance should:

- Replace spark plugs
- Replace gearbox oil
- Adjust oil-metering pump (in two-stroke engine models)
- De-coke silencer (two-stroke only)
- Check tire wear and replace tires, if necessary

### **Step 4. Every 12,000 Kilometers**

- Replace tires
- Replace the air filter element
- Replace the fuel filter
- De-coke the exhaust system (for two-stroke motorcycles)
- Check wear on the chain and sprocket, and replace if necessary

### **Step 5. Every 24,000 Kilometers**

- Repeat step 4 maintenance
- Replace chain and sprockets
- Check top-end of engine: piston rings, small-end
- De-coke head (for two-stroke motorcycles)
- Replace piston rings and small-end, as well as other parts, as necessary
- Check play in big-end and main bearings
- Check wear in barrel

## Figure 9. Vehicle Servicing

### Four-wheeled vehicles—Type A Service—Every 10,000 km

- Change engine oil and oil filter element
- Clean oil filter cap and crank case breather
- Clean air cleaner element and top-up air cleaner oil
- Clean the fuel sediment bowl
- Clean and reset contact breaker points (in a gas engine)
- Clean and reset spark plugs (in a gas engine)
- Lubricate all grease points
- Check oil levels in:
  - Gearbox, hub reductions, and differentials
  - Steering swivel joints
  - Steering box
  - Fuel injection pump
- Check fluid levels in:
  - Break and clutch master cylinders
  - Windshield washer bottles
- Use oil or grease to lubricate:
  - Throttle and accelerator linkages
  - Door locks and hinges
  - Hood and trunk fasteners and locks
- Check and, if necessary, address:
  - Battery terminal cleanliness
  - Tightness of batter clamps
  - Tension of fan belt (do not over tighten!)
  - Engine idling speed
  - Water and oil leaks
  - Clutch and brake pedal clearances
  - Body and spring u-bolts
  - Tire pressure and wear
  - Tightness of wheel nuts
  - Prop-shaft bolts
  - Wheel alignment and balancing

*Notes: Avoid overfilling oil levels; remove oil drips and spills after topping up and lubricating; wipe away surplus grease and finger marks from paintwork and interior.*

### **Four-wheeled vehicles—Type B Service—Every 20,000 km**

- Repeat type A service
- Replace fuel filters
- Replace air cleaner element
- Replace contact breaker points
- Lubricate distributor
- Replace spark plugs
- Check fluid levels in battery and radiator
- Check and, if necessary, address:
  - Suspension brushes
  - Wheel bearings
  - Engine and gearbox mountings
  - Brake, clutch, and fuel pipes
  - Exhaust fittings (for tightness)
  - Valve Clearances
- Check brake linings and drums, cleaning and reporting them if worn.



## Defect Identification

Each vehicle should have a defect form (see form in Appendix A) Vehicle operators should complete the form whenever they cannot resolve a defect they've identified. The defect should be reported through the reporting system that is in use at the vehicle's location.

If a major defect is found, it must be resolved before the vehicle is brought back into service. Such an event will be very rare in a well-managed system because *the objective of planned preventive maintenance is zero breakdowns*.

## Regular Servicing

To avoid mechanical breakdown and unnecessary wear-and-tear on a vehicle, the manufacturers' standard maintenance procedures must be carried out by a qualified mechanic.

If a vehicle goes more than 20% over a service interval, it should not be used until service is complete; even if the service lapse is due to lack of funds. If a vehicle is being run over the 20% margin, the Transport Officer should have authority to remove the keys and inform the appropriate manager.

## Planning Service Schedules and Intervals

Determining when to perform routine maintenance essentially requires a balance between paying too little attention to a vehicle (resulting in its rapid deterioration) and paying so much attention that unnecessary maintenance and running costs are incurred.

Vehicle manufacturers provide the starting point from which to decide service intervals. Their recommendations specify what work is to be carried out at specific kilometer intervals, and are usually found in the new owner's document pack. They are meant for average operating conditions of a vehicle of a particular type.

Manufacturers' service specifications for a small sedan will assume that it is used mainly on paved roads, carrying moderate loads. For a 4 X 4 vehicle, they will assume that a proportion of the work will be off-road. The care that a vehicle operator uses is an important factor, as is whether the vehicle is used mostly on long journeys or multiple short trips in heavy traffic.

To make decisions about maintenance scheduling and intervals, an experienced Transport Officer combines sound technical judgment and experience, a good understanding of vehicle usage, and familiarity with the vehicle operators.

As long as routine daily checks are maintained, manufacturers recommend a full inspection and servicing of 4 X 4 vehicles every 10,000 to 15,000 kilometers. The manufacturer of a motorcycle might recommend this every 1,000 to 2,000 kilometers.

The type of servicing that is needed changes at different intervals over a vehicle's life. Inspection and service steps carried out at 50,000 or 100,000 kilometers are different from intermediate steps, and will include the replacement of major components.

## Managing the Maintenance Schedule

Four information sources are used to manage vehicle maintenance and repair:

1. The vehicle defect report (see Module 1 and form in Appendix A)

2. The vehicle maintenance summary (see form in Appendix A).
3. The twelve-month planning schedule (see form in Appendix A).
4. The seven-day transport schedule (see Module 1 and form in Appendix A).

## Vehicle Maintenance Summary Form

Each vehicle must have its own file, including a maintenance summary. A partially filled-in maintenance summary form is illustrated in Figure 10 below. It records the entire history of the vehicle's maintenance and repair work. The next due date for routine service can be estimated from the last record. Unless a defect report is filed to alert the Transport Officer to the need for immediate repair, the next date for routine service should be entered on the twelve-month planning schedule.

**Figure 10. Completing the Vehicle Maintenance Summary**

Place this form at the front of the maintenance section in the vehicle it will help with monthly returns.

### VEHICLE MAINTENANCE SUMMARY

SHEET No. 1

**VEHICLE REGISTRATION** 6CD 716 6  
**MAIN LOCATION** Uppington Region  
**DATE RECEIVED** 09/14/09

**VEHICLE MAKE AND MODEL** Nissan Sentra  
**NEW?** YES ☐ NO: AGE 3.5 years

If the vehicle is not new, indicate the age on the date the form was received.

DATE	KM READING	WORK DONE	GARAGE USED	COST		
				LABOR	PARTS	TOTAL
01/05/08	111,452	Type B service: new clutch, wheels aligned	Nissan Uppington	350.00	210.66	460.66
03/07/08	115,672	Body work: straightened dent in off-side wing	Uppington Body Works	625.86	100.00	725.86
05/10/08	123,154	Type B service	Nissan Uppington	450.00	125.00	575.00
01/31/09	129,391	Starter motor repaired	Nissan Uppington	58.75	120.00	178.75

It is often hard to specify labor costs when work is performed at an in-house garage.

## Twelve-month Planning Schedule

The Transport Officer will draw up a master vehicle and servicing schedule for all vehicles in the fleet. Vehicle users must agree to respect this schedule and make vehicles available for maintenance procedures (e.g., a vehicle may be in the garage for one day for minor work, or out of service for a week if it has to come in from a distant location for major repair).

To allow for servicing to fit with organizational planning, service intervals should be scheduled twelve months in advance for each vehicle. It is best to record the schedule on a white board in the transport office. Schedules for each vehicle should be updated each month, always allowing a full

year to be seen at a time. The white board should also record other key dates for each vehicle (e.g., vehicle tax payment, vehicle inspection, and insurance renewal dates).

The twelve-month plan (see Figure 11) provides information needed to ask users to make vehicles available well in advance of their service date, book vehicles into the garage in advance, and provide notice of the type of work to be done.

**Figure 11. Twelve-month Plan**

Year: 2009												
Vehicle Reg. & Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ABC123 4 × 4		40,000km Type C Service										
ABC165 Motorcycle				40,000km Type C Service								
ABC534 Motorcycle									24,000km Module 5 Service			
ABC975 4 × 4			6,000km Module 3 Service									
ABC875 4 × 4				60,000km Type D Service								
ABC095 4 × 4											100,000km Type E Service	
ABC612 4 × 4											100,000km Type E Service	

The inspection and service dates in the twelve-month plan are based on the estimated kilometer distances traveled by each vehicle. If these estimates are significantly different from actual distances traveled, the dates will need to be adjusted periodically.

## Seven-day Maintenance (or Transport) Schedule

The same seven-day schedule discussed in Module 1 (see form in Appendix A) is prepared for each coming week. As well as planning users' transport needs for the coming week, the form is used to record the type of work due for each vehicle that has been brought for service, any additional work indicated on the vehicle's defect form, the vehicle's destination garage, and the time expected for it to be in the garage.

Time required for servicing and repair will have been agreed in advance with the garage. This may change if additional defects are found during inspection. Completed work is recorded on the maintenance summary form, and the next routine service is added to the twelve-month planning schedule.

## Managing Vehicle Maintenance

If a vehicle is based in a remote location and is not regularly seen by the Transport Officer, it is the vehicle operator's responsibility to inform the Transport Officer when the vehicle is nearing its next

service date. It is important to remember that the time noted on the twelve-month planning schedule is only an estimate.

Arrangements for maintenance should be made well in advance. At the time of booking, the garage must receive clear information on what needs to be done. Developing SOPs for vehicle servicing can help manage vehicle flow and avoid congestion in the garage.

For routine servicing, the service type should be shown. If defects have been identified, they should be listed. If the work to be done is outsourced, the order form should refer to any price quotation. For non-routine work, cost estimates should be provided and agreed upon.

Time estimates should be agreed upon for non-routine work. All details should be written on the order form before work starts and must be authorized. Preparing the order form is a convenient time for the Transport Officer to check previous work records kept in the vehicle file. This allows the TO to look for any recurrent vehicle faults that should be investigated by the garage.

The odometer reading at the time a vehicle is sent to the garage should be noted on the order form, work report, and vehicle maintenance summary. All loose equipment (e.g., spare wheels, jacks, warning triangles, and tools) should either be removed before the vehicle goes to the garage or noted on the order form and checked off when work is completed.

Upon completion, a full inspection of the work and a test drive should take place, and the work report completed by the garage should be checked against the order form. These checks should be completed and signed off by the TO before any invoice is issued.

The next service date is estimated or adjusted on the vehicle maintenance summary, and the next routine service is added to the twelve-month planning schedule. It is important to write this information on an adhesive label placed in the vehicle so that it can be clearly seen by the vehicle operator.

## **Vehicle Operator Training**

Operators have a major role to play in a vehicle's care and maintenance. Thus, supervised training should be in place before allowing operators to drive a vehicle. This can be quite difficult to implement, particularly if a Transport Officer is responsible for a mix of paid drivers and health workers (including senior staff) who operate vehicles.

It is very useful to provide each operator with a comprehensive instruction document explaining daily checks, how to complete the vehicle logbook and defect form, procedures for different types of defects found, and what to do in the event of a break-down or accident. But, it is also essential to conduct practical training. It is best to combine this with practical instruction on safe and fuel-efficient vehicle operation.

Transport Officers who are responsible for a small fleet of vehicles and operators could conduct this training. For large fleets, particularly ones that are split across different locations, the TO should run periodic training-of-trainers courses, and carry out spot checks to see that the training is being done and proper procedures are being followed. When doing this for the first time, it is best for a TO to consult and adapt the instructions for defensive, safe, and fuel-efficient driving used by a professional trainer.

## Maintenance Options

Vehicle garage maintenance activities are designed to cover vehicle inspection, vehicle servicing, and defect repair. There are three possible maintenance options, which may be chosen exclusively or used in combination:

1. In-house maintenance.
2. Outsourced maintenance.
3. Maintenance by a private contractor through a vehicle contract agreement.

Small garages will need to undertake vehicle inspection, fault diagnosis, standard servicing, and basic fault repair. More complex tasks will likely need to be referred to large garages that have special equipment and mechanics trained to use it.

Depending on the number of vehicles, Ministry of Health facilities will probably be relatively small in-house garages that also use private contractors. Even the best-equipped in-house garages that employ highly trained mechanics often need to refer some work to specialist maintenance facilities.

For an operation to justify in-house garage facilities, there must be a compelling practical and economic justification. A practical reason may be that there is no acceptable alternative to setting up such a garage. Cost considerations include:

- Premises.
- Machine tools.
- Lifting equipment.
- Health and safety equipment.
- Staff costs, including ongoing training on new vehicles and equipment.
- Consumable materials, including, lubricants, filters, and spare parts.
- Technical manuals.
- Idle time.
- Distance and time required to travel to alternate facilities.

Remote facilities will have different needs from those based in large towns. Facilities in large towns may employ a mechanic who undertakes regular inspection, maintenance, and basic repair. The facility may also control fuel storage and allocation, in which case it is also important to consider security.

Whatever mix of in-house and external facilities is used, it is critical to employ at least one person with sufficient mechanical skills and knowledge to manage outsourced work. This person will need to:

- identify garages that are equipped to undertake the necessary work to a high level of competence;
- negotiate competitive rates for standard procedures, and establish service level agreements and warranties on work undertaken;

- understand the maintenance and repair requirements of the vehicles to be referred to the garage;
- establish a schedule for standard maintenance of the fleet;
- document all procedures undertaken on vehicles; and
- check and perform quality control on the work carried out on vehicles (e.g., checking that genuine spare parts were used and that turn-around times were respected).

In a small organization, these needs may be met within the Transport Officer's skill set. In larger organizations, the team may comprise TOs with responsibility for overall transport management, and a mechanic or garage team in charge of managing the condition of the fleet.

## **Warranty on New Vehicles**

All new vehicles will have a manufacturer's warranty built into the purchase price. This may include cost-free servicing (excluding consumables) for a defined period. The full warranty is usually valid only when an approved service provider undertakes work on the vehicle for the specified period.

It may not always be possible to comply with the conditions of a warranty, particularly when vehicles are based far away. In such cases, it is important to negotiate with the dealer before purchase because, if the warranty becomes invalid, avoidable and expensive repair costs could occur. A vehicle's condition should be monitored throughout its warranty to ensure that any potential losses due to component failures can be recovered.

## **Cold Chain, Distribution Modeling, and Truck Fill**

This section of the module links previous lessons about managing a vehicle fleet with essential information on how to best operate vehicles. This includes planning routes, and safely and efficiently loading vehicles (with people and cargo).

Cold/cool chain management is an important part of managing transport and distributing health supplies.

### **Cold/Cool Chain Management**

Some products can be fragile or sensitive to light or temperature. It is important to always be aware of the transport requirements of such cargo. A cold/cool chain ensures that temperature-sensitive products (often vaccines, medicines, and foods) are stored and transported at the correct temperature in order for them to remain usable from the point of manufacture to the point of use.

A cold/cool chain requires the use of refrigerators, cold stores, freezers, and cold boxes to maintain the right temperature of cargo at all times. A break in this chain, even for a short period, can affect the effectiveness, safe use, and consumption of the products. Cold/cool chain management comprises using and maintaining appropriate equipment and control processes, and ensuring that the people involved are effectively trained and understand all requirements. Evaluations of cold/cool chain management in Africa conducted in 2003 found that common problems include:

- Frequent and prolonged breakdowns in the chain due to lack of fuel or spare parts.
- Lack of planning for maintenance and cold/cool chain rehabilitation.

- Lack of planning for emergencies.
- Lack of cool boxes.

Transport officers can play a significant role in solving these problems by:

- identifying problems in the cold/cool chain and their causes;
- taking particular steps to remove these causes; and
- strengthening management systems

Organizing the storage and distribution of temperature-sensitive supplies is part of the overall network design and should take the most appropriate distribution model into account. Below, the basic principles of distribution models and network design are discussed, but these should be considered as illustrative examples. Network design is relatively complicated and, in addition to transport policies, needs to be consistent with inventory policies, storage policies, and how information is transmitted. The network design will determine whether products are delivered or picked up, at what location, in what amounts, etc.

## **Distribution Modeling**

Distribution modeling is the process of planning drug and equipment deliveries in line with an organization's needs. It is important to plan distribution to minimize the distance each vehicle has to travel, thus reducing costs and increasing efficiency.

Matters outside of direct control always affect the efficiency of transport management. It is particularly important to take into account the prevailing conditions on delivery routes. Advance route planning helps avoid problems. It is essential to think about:

- the total time any cold/cool chain will need to be maintained;
- the type of road (i.e., primary, secondary, village, tracks);
- roads that are or could be impassable (due to floods, snow, landmines, insecurity or other causes);
- the type and size of trucks that can use each road (noting seasonal variations);
- the types and capacity/weight limits of bridges;
- dangerous overhangs and steep hills (noting their percent gradient);
- river crossings and ferries (noting expected delays, tolls, and other related factors); and
- expected high traffic areas and alternate routes.

A number of factors influence which distribution model is the most appropriate and efficient for each operation. These include recipient location; transport costs; available vehicle types and other modes of transport (e.g., rail and boat); the size, location, and costs of a distribution center or warehouse; order size and frequency; service level requirements; and ports of entry for imported products.

With effective distribution modeling, it is possible to reduce distribution costs and improve an understanding of the needs and demands at all points along the health service supply chain.

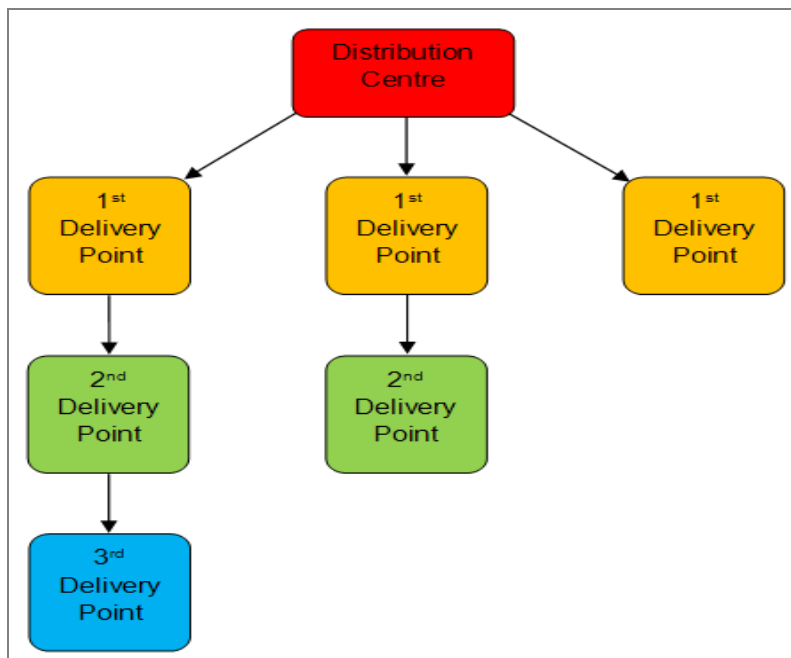
## Network Design

Illustrated below in Figure 12, direct delivery (or ‘direct drop’) is a system by which goods are delivered from a central point to a secondary point. Often, health supplies need to be dropped by the same truck in different or multiple locations. When using this system, it is essential to ensure that vehicles are loaded in the correct drop order to reduce delays at each delivery location.

It is also important to monitor and keep detailed performance indicators (which will be discussed in Module 6) regarding truck utilization. This will assist in avoiding situations in which vehicles travel half-empty to a single delivery point. In a distribution center network (or ‘hub-and-spoke’ model), which is shown in Figure 13, warehouses are the hubs and transport routes from the warehouses are the spokes.

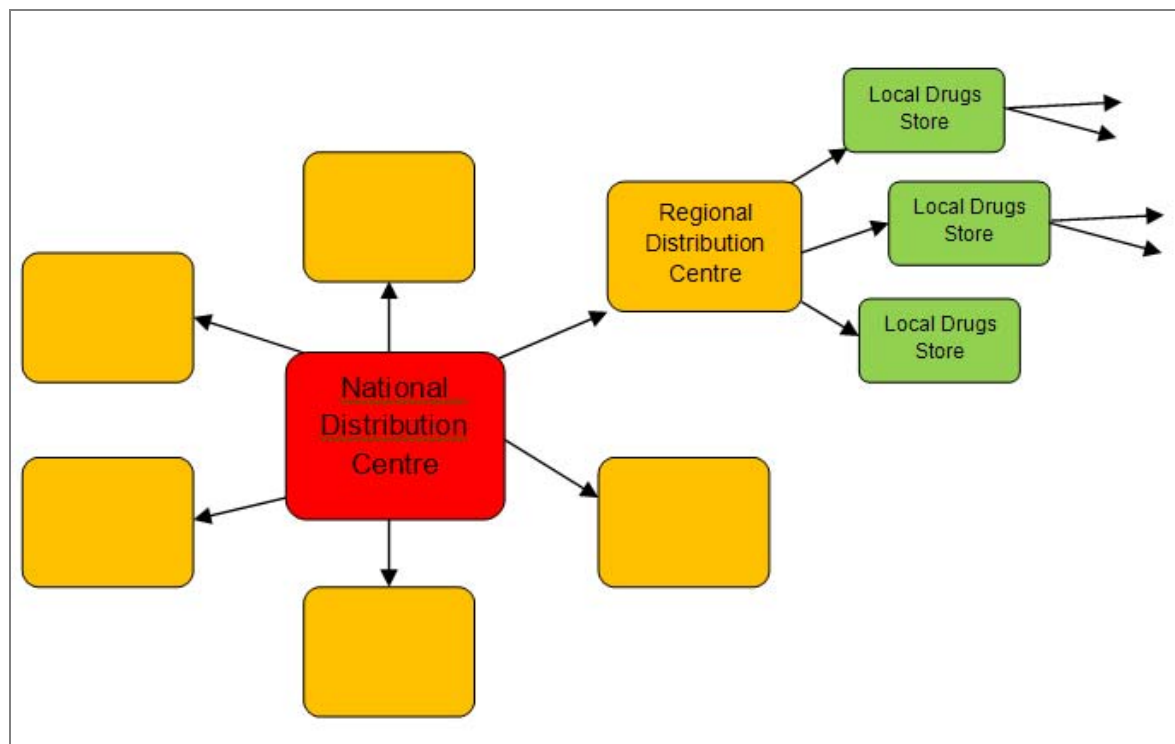
There are a number of other network design models and there are software applications that are useful for more complex systems. For simplicity, this module focuses on the direct delivery and center network design models because they are among the most often used. The figures below show the two delivery methods.

**Figure 12. Direct Delivery Network Model**





**Figure 13. Distribution Center Network Model**



## Truck Fill

Truck fill measures the use of any vehicle (not only trucks) in relation to its ability to carry a certain weight or volume of supplies. Transport specialists in a distribution centers need to know how effectively the carrying capacity of their vehicles is being used.

### Safe Truck Fill by Weight

Each vehicle can carry a different load. A Toyota Land Cruiser station wagon can safely carry approximately 900 kg, while a large truck might carry up to 25,000 kg. Two pieces of information are needed to calculate safe truck fill by weight: (1) how much weight the vehicle can safely carry and (2) how much the intended load weighs.

Vehicles are delivered with an owner's or operating manual that specifies the safe weight that the vehicle can carry. It may be called 'carrying capacity' or 'payload'. Beyond these, it is essential to consider local regulations that may restrict the weight that can be carried.

To calculate truck fill by weight, it is necessary to know the percentage of a vehicle's carrying capacity being used per load (that is, the maximum load multiplied by 100 and divided by the actual load). An example is provided in Box 6 below.

### Box 6. Safe Truck Fill by Weight

#### Formula

$(\text{actual load} \div \text{maximum load}) \times 100 = \text{truck fill by weight (\%)}$

#### Example

A truck at the Hetland medical stores has a carrying capacity of 10,000 kg. You have planned that it will carry a load of 9,000 kg.

$(9,000 \text{ kg} \div 10,000 \text{ kg}) \times 100 = 90\% \text{ truck fill by weight}$

The truck thus has 10% surplus weight capacity.

Vehicle load distribution is also a critical factor to take into account when transporting heavy goods. A vehicle's individual axles have safe operating limits (these will also be listed in the operating manual). Moreover, local regulations may limit the total combined vehicle operating weight below the design weight, which is the weight of the vehicle plus the weight of the goods carried. Local restrictions are often based on road conditions and, importantly, the maximum safe load that bridges can support.

### Safe Truck Fill by Volume

Each vehicle can carry a specific volume of supplies. It is important to maximize the carrying capacity of each vehicle. Truck fill by volume measures how much space is used. To calculate truck fill by volume, it is necessary to calculate the percentage of the vehicle's volume capacity that is being used for a load (see example in Box 7). This is a similar calculation to the safe truck fill by weight calculation above, but requires knowledge of the volume of both the truck and its load. It is often simpler to measure truck fill by volume by looking at the loaded truck and estimating how full it is (as a percentage).

### Box 7. Safe Truck Fill by Volume

A truck at the Hetland Medical Stores was delivering one load to a health facility. The TO saw that it was only about 40% full and so decided to add another load of equal volume and deliver to two health facilities along the same route.

### Weight and Volume Efficiencies

Trucks that are not full, either by volume or weight, are operating inefficiently. Trucks may be loaded to 100% by weight, but may only be partly full by volume when the goods being carried are very heavy. Alternatively, a truck may be less than 100% full by weight, but 100% full by volume if carrying something of high volume. **Ideally, a vehicle should be 100% full, either by weight or volume, when it is used for transport.**

## Volume and Numbers of Vehicles Needed

The calculations in Box 8 below are based not just on the weight of the load, but also the volume of the health supplies transported. If vehicles of different load capacities are used, an estimate should be made for each vehicle. If the supplies are going to different destinations, each requires its own calculation. Further explanation and help with this calculation is included in the box.

### Box 8. Number of Vehicles Needed, by Weight and Volume

- number of possible trips per vehicle = total period in which all trips can be made ÷ (duration of one round trip + 25% safety factor)
- number of loads = total weight of loads (kg) ÷ vehicle capacity (kg)
- number of possible trips possible per vehicle = total time available ÷ total time needed for each round trip
- number of vehicles needed = number of loads ÷ number of possible trips possible per vehicle

## Case Study

### Not Too Late! Improving a Fleet Through a Well-planned TMS Intervention

During a long period of civil unrest in Hetland, international donors had made considerable capital investments in the Ministry of Health fleet, purchasing new vehicles and equipping garages for maintenance and repair. Donors saw this injection of funds into the MOH as a ‘quick fix’ solution for their vehicle fleet.

However, monitoring where the funds were specifically spent was lacking during this time, and the quality of the fleet deteriorated. Vehicles were not maintained, drivers were not trained, transport was not managed, and vehicles were taken for personal use.

Vehicles that were written off as non-functional ended up on bricks in the health center parking lot, and were stripped of all working parts. Tools were stolen from the MOH garage, and the mechanics felt unmotivated. They left the Ministry to work for higher salaries at the new private garages that had started up in the main cities.

Senior MOH management became frustrated. They found that the lack of transport reduced their ability to deliver basic primary health care services. At the same time, they saw certain health programs meeting their targets because they had access to new vehicle fleets. The management put in requests to donors for new vehicles. They saw this as the only way to help them solve their transport problem.

The donors noted that transport problems had resulted from the lack of a system to efficiently manage fleet maintenance; poor distribution and use of the vehicles; a transport management system that provided insufficient data on vehicle performance; low vehicle availability at health facilities; and inappropriate use of vehicles.

A tender was put out and an external transport management organization brought in to assist. The Head of Administration at the MOH welcomed such support, noting a desire to curtail rampant

personal use of vehicles, the continued listing of decommissioned vehicles on the central asset register, maintenance difficulties, and other problems.

The organization set up a transport management system to manage the fleet. Training was given to Transport Officers on how to plan and schedule vehicles to maximize their use. They were also trained in planning the use of vehicles on a daily, weekly and yearly basis, and how to incorporate issues, such as regular maintenance, into their plans.

Surveys were conducted of all government and private maintenance facilities that serviced MOH vehicles. Service agreements were drawn up outlining key areas, such as cost and time for repairs, and maintenance. In the MOH facilities, training was provided for the mechanics to do the smaller repairs and regular services.

Drivers were trained on their responsibilities as operators of MOH vehicles and on how to conduct daily checks to ensure that there were no major problems before vehicles were put into use each day. Drivers also learned how to implement planned preventative maintenance, to report vehicle defects, and how important these tasks are.

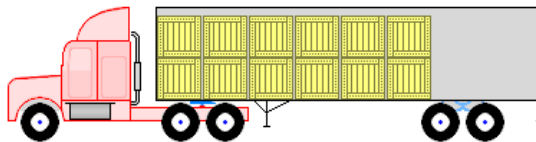
When the donors next offered vehicles to the MOH, the TOs had the skills and ability to ask for types of vehicles based on the work that they were actually needed for. The TOs no longer wanted just any vehicles, but ones that could do the job required of them, and for the conditions they would be working in. The TOs also made sure that the vehicles were a make that could be appropriately maintained and repaired.

By the time the external organization left Hetland, a small team of experts had been built up within the MOH to manage the hugely expensive asset of transport. Now, three years later, Hetland's Ministry of Health has a fully-functioning TMS and has reduced the national fleet size and overall costs by 16%, but still increased fleet availability and utilization by over 35%.

- How does this case study compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far?

## Self Assessment

1. What questions must be asked when looking at the operational specifications of a vehicle?
2. Once the operational specifications of a vehicle have been determined, what technical specifications should be considered?
3. In addition to technical specifications, what other factors must be taken into account when looking at the purchase of new vehicles?
4. What does PPM mean and what are its three components?
5. Where is information to begin creating a service schedule usually found? What recommendations does it help inform?
6. Briefly describe how to plan scheduling.
7. List the different types of maintenance facilities and write a short essay on how they are managed.
8. If a vehicle has a loading capacity of 5,000 kg and you place 3,500 kg of malaria nets in the back, what is the truck fill by weight?
9. What would you estimate the truck fill by volume to be on this truck?



## Self Assessment Answers

1. What questions must be asked when looking at the operational specifications of a vehicle?
  - What are vehicles mainly used for?
  - On what road conditions are vehicles mostly driven?
  - Who will be the main operator?
  - What will be the typical distances traveled per month?
  - What are the available maintenance facilities?
  - What is the budget for purchase and running costs?
2. Once the operational specifications of a vehicle have been determined, what technical specifications should be considered?
  - Body type.
  - Carrying capacity and seating configuration.
  - Ground clearance.
  - Diesel or gasoline engine.
  - Engine size.
  - Ancillary and safety equipment.
  - Availability of trained operators or training for specialized equipment.
  - Price and availability.
3. In addition to technical specifications, what other factors must be taken into account when looking at the purchase of new vehicles?
  - Policies regarding fleet standardization.
  - What makes of vehicle are best supported in-country with spare parts and servicing, and relative costs.
  - Feedback from users on different makes and models
  - Delivery time.
  - Additional costs (shipping costs, import duties, etc.)
  - Warranty support and its feasibility.

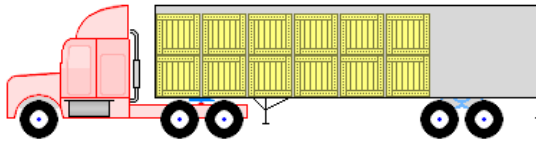
4. What does PPM mean and what are its three components?
  - Planned Preventive Maintenance, whose three main components are: daily checks, defect identification, and regular servicing.
5. Where is information to begin creating a service schedule usually found? What recommendations does it help inform?
  - In the owner's document pack
  - Specific work to be carried out at specific kilometer intervals

6. Briefly describe how to plan scheduling.

*Your answer should cover the four information sources that are used to manage vehicle maintenance and repair:*

- Twelve-month planning schedule: a master vehicle and servicing schedule for all vehicles in the fleet.
  - Seven-day transport schedule: users' transport needs for the coming week, or the type of work due for each vehicle that has been brought for service, any additional work indicated on the vehicle's defect form, the vehicle's destination garage, and the time expected for it to be in the garage.
  - Vehicle defect form: a report of a problem with a vehicle, potentially leading to a decision to remove the vehicle from service for repair, which should be reflected in the seven-day transport schedule.
  - Vehicle maintenance summary: the entire history of a vehicle's maintenance and repair work, including the last date of routine service, from which the next date for service can be estimated and entered on the twelve-month planning schedule.
7. List the different types of maintenance facilities and write a short essay on how they are managed.
    - Your answer should cover the differences between In-house maintenance, outsourced maintenance, and maintenance by a private contractor through a vehicle contract agreement. It is important to note that these options may be chosen exclusively or used in combination, and that the transport team should include at least one person with sufficient mechanical skills and knowledge to manage any outsourced work.
  8. If a vehicle has a loading capacity of 5,000KG and you place 3,500KG of malaria nets in the back, what is the truck fill by weight?
    - $(\text{actual load} \div \text{maximum load}) \times 100 = \text{truck fill by weight (\%)} \rightarrow (3,500 \div 5000) \times 100 = 70\%$

9. What would you estimate the truck fill by volume to be on this truck?



- 60-80



# Module 4. Health and Safety

## Introduction

By the end of this module, you will be able to:

- identify key health and safety concerns for transport management;
- monitor and improve health and safety in your own transport management system;
- manage accidents and incidents; and
- understand appropriate insurance coverage.

## Health and Safety in Transport Management

Observing, implementing, monitoring, and reviewing health and safety standards is critical to achieving safe, effective transport management. The main reason for doing this is to avoid death and injury from traffic accidents.

Traffic crashes are amongst the main causes of death in the developing world; comparable in scale to malaria or HIV/AIDS. Unlike these other epidemics, the global loss of life from traffic accidents is forecast to increase rapidly.<sup>1</sup> Managing and enforcing basic health and safety measures can help minimize risks to vehicle operators and users, as well as to anyone on or in the proximity of a roadway.

Safety measures improve entire transport management systems and help ensure that a fleet will be subject to fewer repairs and replacements. Health and safety requirements for transport management systems must meet statutory criteria set out in national and local legislation, as well as local or wider organizational policy.

Implementing health and safety measures, such as the ones below, can help reduce some of the most serious risks associated with transport—

- Drivers and other staff:
  - Injury
  - Death
  - The need for temporary or permanent replacement personnel to cover injured staff members.

---

<sup>1</sup> Global Status Report on Road Safety: Time for Action (WHO, 2009)

- Community
  - Injury
  - Death
  - Law suits
  - Loss of cooperation and confidence due to a negative public image (some cases may even lead to direct abuse of staff by the public)
- Vehicles:
  - Repair and replacement of vehicles
- Fuel:
  - Injury
  - Death
  - Loss of property (structural property and vehicles)
- Donors:
  - Loss of donations
  - Cancellation of projects (due to negative publicity and donor perceptions of a poorly-managed organization)

## Safe Vehicle Operation

Safe operation of a vehicle fleet brings together three elements that are also explored in detail in other modules in this guide: vehicle operator responsibilities (Module 1), planned preventive maintenance (Module 3), and training and assessment of vehicle operators (Module 5).

There are additional vehicle operator responsibilities that are specific to health and safety. Safety equipment requirements depend on the country, vehicle type, and specific trip conditions. These may include: warning triangles, helmets, first-aid kits, fire extinguishers, high-visibility vests and jackets (and other protective clothing), puncture repair kits, shovels, winches and tow ropes (or cables), water cans, and spare fuel.

A vehicle's documents must be legal and valid, and the operator must be licensed, authorized, and fit for operation. Any load that is carried should be evenly distributed, stable, and securely fastened; must not be more than the vehicle's load capacity; and cannot create obstacles to driver visibility.

Operators should feel empowered to draw attention to any health and safety concerns related to a vehicle and to those using it; before and during journeys. The operator is generally responsible for the security of the vehicle and its contents.

A number of measures can make journeys safer and more enjoyable—

- To ensure they stay alert, drivers should not operate a vehicle when they feel tired or unfit. They should adjust the seats correctly for their height before fastening the seat belt and check that the seat is secure. They should also take regular breaks during the journey to rest and drink non-

alcoholic beverages. They should never smoke, eat, drink, or use hand-held devices (e.g., mobile phones) when in motion.

- Drivers should clearly not operate a vehicle if under the influence of alcohol or drugs. Due to the potentially fatal consequences of substance abuse, SOPs or transport policies should include specific and strict penalties for vehicle operators who use alcohol or dangerous drugs. There must also be clear, scientifically-based guidance on using medically-prescribed drugs. And, there should be an education program for all vehicle operators.
- Good drivers should be able to anticipate the actions of other road users and pedestrians, and change speed accordingly. They should also anticipate hazards, such as corners, bridges, drain covers and potholes. The “hazard drill” should always be followed:  
*mirror→signal→mirror→maneuver into position→adjust speed→look into hazard→if clear, proceed.*
- Different road and weather conditions affect how a vehicle handles. When it is wet, stopping distances should become two or three times greater than for dry roads. Drivers should always use lights and signals to be visible to other road users, especially when maneuvering. They should also wear high visibility clothing if on a bicycle or motorcycle.
- Pedestrians and animals can be unpredictable. Drivers should not assume that every pedestrian can hear or see them coming. It is important to pay careful attention when approaching public transport vehicles that are parked, picking up passengers, or traveling through built-up areas. Special attention should always be paid to children and disabled or elderly people. In built-up areas, speeds should be lowered to avoid the need to swerve suddenly or brake sharply.
- National and local speed limits must be obeyed. It is important to note that a maximum posted speed limit may not mean that it is safe to drive at that speed. A vehicle must be able to stop quickly and safely in an emergency, and should never travel faster than the speed at which it is stable.
- In the case of a breakdown, drivers should place the vehicle in the safest position possible. They should use visible hazard warnings or a person (who is positioned to be visible to oncoming drivers, but who is not at personal risk) to warn other road users of the danger ahead. Warning signs should be removed as soon as they are no longer needed. When working on a vehicle, drivers should make sure they are clearly visible to and out of the path of moving traffic. If possible, it is best not to leave a vehicle unattended.
- Drivers should always operate vehicles based on their training. Taking good care of a vehicle reduces the risk of breakdown.

## **Crash and Incident Procedures for Vehicles**

Vehicle crash and incident reports for theft, hijacking, and damage not caused by an accident should be managed and completed in line with established transport policies (see forms in Appendix A). This means having strong control measures in place for all accidents, incidents, and vehicle losses.

Making accurate records at the time of any type of incident is very important in terms of potential litigation and to support insurance claims. During incident investigations, it may also be necessary to follow up on disciplinary, training, or assessment implications for staff.

## Responsibilities

Keeping as calm as possible after an incident is important, although this may not be easy. The vehicle operator, if not hurt, is responsible for taking charge of the situation. If they are unable, any uninjured passenger should do so, including completing a crash/incident report. These basic procedures should be known by anyone who travels in a vehicle.

Identify the person in an organization who is responsible for dealing with incidents and insurance. This person must know relevant national legal requirements and be aware of the insurance coverage being used. Their responsibility is to ensure that everyone who operates or uses one of the organization's vehicles and all transport staff are fully aware of incident reporting procedures. Senior management should be alerted if there is no one with this responsibility on staff.

The Transport Manager must investigate the circumstances behind any vehicle incident. This includes interviewing the operator and everyone else in the organization who is directly involved. This also means ensuring that comprehensive, clear records are written up as soon as possible and kept on file for at least five years (or longer, if the law requires it). These records include two forms:

- The crash/incident report (see form in Appendix A) to record all information at the time of the incident.
- The crash/incident follow-up report (see form in Appendix A) to detail management actions taken to close the case and to prevent a similar incident from occurring in the future.

Insurance companies will almost certainly require a form to be completed when receiving a claim. This must be done in addition to completing an organization's internal forms. Moreover, it is helpful (if possible) to take pictures of the incident and the damage caused, including from different angles. This can help identify cause and responsibility.

## At the Scene of an Accident

The six steps listed below should be understood by vehicles operators and other staff members, and should always be followed sequentially after an accident that has resulted in the death or injury of a person, or in property damage.

### Step 1

Decide whether further danger exists (e.g., from injury, fuel leaks, exposed or broken lights, or poor visibility). Remove drivers and passengers from any dangerous situations, if possible. Quickly resolve minor problems that do not put you or anyone else in danger.

### Step 2

If no danger is detected or existing danger is resolved:

- identify injuries to people (or animals);
- seek medical assistance, if needed;
- ensure that treatment of injuries is performed by a medically qualified person and, otherwise, only move seriously injured in an emergency (e.g., if there is risk of further impact, fire or explosion);
- keep injured people warm and as comfortable as possible; and

- notify the police, if necessary.

### **Step 3**

Put up warnings for other road users and remove dangerous items from the road, if it is safe to do so. Do not move anything else until the police have inspected the vehicles and the accident site. Secure any valuables in or on the vehicle (e.g., by locking them inside). Alert your organization as soon as possible.

### **Step 4**

Cooperate with other parties and vehicle drivers involved, but do not make agreements or sign any documents, and NEVER admit liability. Exchange insurance details where applicable.

### **Step 5**

Before leaving the scene of an incident, obtain the following information from the operator/owner of the other vehicle (or vehicles) involved —

- Full name of the vehicle operator/owner.
- Registration number of the vehicle involved, ID number of the operator, and proof of a valid vehicle license.
- Work and home addresses of the operator and their telephone number.
- Confirmation of whether the vehicle is privately owned or belongs to an organization. If owned by an organization, obtain the full name and details of the organization, and the name of the manager responsible for claims.
- Proof of whether the vehicle is covered by insurance, including the insurance company's name and a policy number, if possible. If police are called, obtain the case number, and the name and number of the officer(s) who attends.

### **Step 6**

Complete the crash/incident report. This should include accident pictures or a sketch (it can be basic, but should indicate relevant distances from a point of reference [e.g., a stop sign], speed limits, and landmarks), as well as all other details shown in the sample form in Appendix A of this guide. A copy of the police report should be obtained, if possible. This may take some weeks and may have to be done at the police station.

Any injured people should have been evacuated and arrangements made to move the vehicle(s) involved while these six steps are being completed. If the vehicle can be moved, it must be completely safe and roadworthy, and the police (if they attended) must have agreed that it could be moved.

The original operator should only move the vehicle if they are not injured and are capable of doing so. If there is any doubt, another operator should be asked to move it. Anyone who moves the vehicle must be trained and authorized to do so. If the vehicle is to be recovered by other means, it is important to know where it will be taken and that all valuables (possibly including the load) are first removed.

If the vehicle is insured, the insurance company will usually want to inspect it to assess the damage and estimate repair costs. This inspection is generally done at the garage where the vehicle is taken or at its normal location. No repairs should be started until the insurance company gives clearance.

## **At the Scene of an Incident**

Incidents (theft, hijacking, and damage not caused by traffic accidents) must be reported to the police immediately. In addition to the appropriate steps for crashes and accidents listed above, the vehicle operator or another responsible person must include the following in the crash/incident report: the time of the incident, where it occurred, and what happened. Incident procedures should be widely communicated within an organization.

## **Subsequent Actions**

Sometimes it is impossible to notify the organization about an accident or incident at the time it occurs. In this case, the vehicle operator (or substitute) should notify the relevant manager(s) as soon as possible; 24 hours afterwards at the latest. They must also give the following to the manager—

- The police case number, the name and number of the investigating police officer, and a copy of the police officer's initial findings.
- A fully completed crash/incident report with a sketch or pictures of the crash. (Blank forms must be carried in every vehicle and kept with other key vehicle documentation.)
- A copy of the operator's ID document, operator's license (where applicable), and trip authority.

These documents must be submitted within seven days. After this, responsibility for all follow-up action lies with the appointed manager. Follow-up actions include—

- Checking and confirming that the documents submitted are correct and complete.
- Confirming that the incident was reported to the police, if necessary.
- Contacting the insurance company for their instructions.
- Checking the condition and location of anyone injured, and notifying any relatives.
- Contacting all relevant parties mentioned in the documents (i.e., witnesses, other vehicle operators, insurance companies, etc.).
- Completing the crash/incident follow-up report.
- Making necessary copies of all documents for distribution.
- Retaining keys and vehicle documents, including fuel cards.
- Canceling any documents for vehicles that are missing, stolen, written off or hijacked, and notifying the relevant people (e.g., the fuel card issuer).
- Following up on repairs in consultation with the insurance company and ensuring that the repairs meet an acceptable standard.

- Following the incident reporting to its conclusion, logging progress and keeping senior managers informed.
- Ensuring that all reporting is completed quickly (i.e., two to three weeks from the time of the incident to closing the report).

A senior transport manager should periodically check the follow-up reports to confirm that satisfactory conclusions were reached and that they were in the best interest of the organization.

Damage and repairs to any vehicle involved in an incident should be noted in the maintenance summary record in the vehicles' file. Costs of repairs should not be included in vehicle running cost calculations, but they should be recorded for other statistical purposes, such as insurance calculations.

In the case that a vehicle must be written off, the vehicle inventory and vehicle information sheet must be completed to indicate this. The vehicle operator record must also be updated with details of the incident in which the operator was involved and any further training they required or disciplinary action taken.

The period transport report (see form in Appendix A) has free space for comments on accident and safety issues. Frequent incidents significantly reduce vehicle availability (noted in the availability days column). The Transport Officer should then keep a separate record to support recommendations aimed at preventing further incidents. In well-managed transport systems, the number of incidents and their impact on vehicle availability and fleet running costs is low.

## **Asset Security and Transport Insurance**

### **Vehicle Assets**

Health and safety policy statements and procedures should specifically address the security of all assets belonging to an organization. For vehicles, transport policy and local operating procedures should be clear about where vehicles can be parked when not in use, or outside of normal hours.

It is important to make sure that these instructions minimize the risk of vehicle theft or malicious damage. In all cases, the safety and security of human life is of the greatest importance. Vehicle operators and others should be instructed not to risk any lives trying to save vehicles from theft, hijack or damage.

### **Insurance and Transport Management**

It is important to think carefully about what kind of vehicle insurance is needed. Options need to comply with minimum legal requirements, which generally means having at least third party coverage.

It is useful to seek advice from insurance or legal specialists in your organization, which should have a policy statement on insurance practices. There are many insurance policies of varying quality available on the market. And, sometimes, one policy will be best for a current transport situation, but not necessarily for the future (e.g., if the fleet size changes or the mix of vehicles changes). Looking at a wide range of insurance options increases the likelihood of getting the best value.

Property insurance is also necessary for organizations with a garage and/or fuel storage facility. When setting up a new transport facility, check insurance requirements before finalizing plans. Take

all health and safety implications into account as part of this process, and fully inform the insurance company of them.

Analyze records of claims against insurance providers to monitor their performance and determine the value of their services. Use this information when deciding on renewing policies.

When minimum coverage is chosen, use any savings in insurance premium payments to provide replacement assets against those written off in each budget period. When choosing third party insurance only, first calculate the effect of reducing the size of the vehicle fleet when it is not cost effective to repair a vehicle after a crash.

To comply with insurance requirements, all staff using or operating vehicles must fully understand crash and incident reporting procedures. Copies of drivers' licenses for authorized and approved drivers should be held centrally by a senior transport manager.

## **Other Health and Safety Issues**

### **Fuel and Other Storage**

It is generally the transport manager's responsibility to supervise storage, including—

- Fuel
- Oil or lubricants
- Other hazardous materials (e.g., chemicals and cleaning materials)
- New or used spare parts
- Workshop tools, equipment, and machinery
- Vehicle equipment
- Drugs, medicines, and cold chain equipment
- Stationery

With the possible exception of fuel, all of the above items will probably be covered by health and safety procedures for storage facilities. However, it is important to check that any suppliers' or manufacturers' recommendations for storage are followed.

The storage of fuel presents specific health and safety concerns. Thus, if a suitable alternative exists (e.g., using a local filling station), it is best for an organization to evaluate whether it is absolutely necessary to have its own fuel storage facility. When deciding to set up a fuel storage facility in an organization, the strictest attention must be paid to—

- Thoroughly training the staff in safe working practices.
- Establishing accident reporting systems.
- Establishing first aid and emergency procedures.
- Performing regular stock checks to prevent misuse or theft.
- Establishing specific procedures for fire and explosion.



- Establishing enforceable regulations against matches, cigarettes, and other types of smoking inside or near the storage facility.
- Ensuring the safety of lighting used in and around the facility, including avoiding unprotected lights (naked lights), oil lamps, and gas lanterns.
- Ensuring adequate ventilation.
- Ensuring cleanliness and the absence of water contamination.
- Preventing spills (to ensure fuel does not get into water systems or cause any other environmental damage).
- Installing storage vessels or containers and fixed delivery pumps under professional supervision, and ensuring their regular inspection by competent authorities.
- Ensuring adequate distance of the facility from homes or work places.
- Informing all appropriate authorities of the facility's operation.
- Regularly monitoring health and safety procedures.

Even when not operating a permanent fuel storage facility, the following must always be observed—

- Fuel should be transported and stored in purpose-built containers as far as possible.
- Fuel should never be stored or transported—even temporarily—in non-approved containers. Plastic bottles and canisters are a special risk because they can easily melt, become distorted, or crack.
- Portable storage and delivery devices should be kept clean and secure. Pay careful attention to any build-up of fuel vapor, which is even more dangerous than liquid fuel.
- Fuel drums, jerry-cans, and other containers should be regularly checked for leaks, particularly ensuring that their closures are secure.
- Fuel containers should be rinsed with clean fuel before refilling.
- Funnels should have mesh or gauze filters to remove solids.
- Proper protection against the weather— particularly extreme temperatures—should be in place.
- Temporary and in-transit fuel storage areas should be secured against people and animals. Restrict access at all times only to people on official business.
- Authorities should be informed of temporary fuel storage, as required.
- Emergency equipment (first aid and fire) should always be accessible, clearly labeled, and regularly checked to make sure that it functions and is not out of date.

## **Garages**

An organization that has its own repair garage must ensure that effective health and safety procedures are defined. The starting place for developing these procedures is the general health and safety procedures that exist for all workplaces in the same organization. However, also it is also necessary to consider specific points, many of which are similar to the measures for fuel storage—

- Thoroughly training staff in safe working practices.
- Establishing accident reporting systems.
- Establishing first aid and emergency procedures.
- Performing regular stock checks to prevent misuse or theft.
- Ensuring cleanliness and tidiness.
- Establishing specific procedures for fire and explosion.
- Establishing enforceable regulations against matches, cigarettes, and other smoking inside or anywhere near the facility.
- Ensuring the safety of lighting used in and around the store, including avoiding unprotected lights (naked lights), oil lamps, and gas lanterns.
- Ensuring the use of safety clothing (e.g., helmets, goggles, boots and protective suits).
- Ensuring adequate ventilation.
- Ensuring cleanliness and the absence of water contamination.
- Preventing spills and ensuring correct disposal of vehicle fluids to ensure they do not get into water systems or cause environmental harm.
- Ensuring safe working practices for charging vehicle batteries (i.e., in a separate, well-ventilated room).
- Ensuring correct storage of hazardous materials (e.g., compressed gas) under professional supervision and ensuring their regular inspection by competent authorities.
- Ensuring adequate distance of the facility from homes or work places.
- Regularly monitoring health and safety procedures.

## **Case Study**

### **How an International NGO Improved its Safety Record**

Using its transport management system, an international NGO decided to gather information on the road accidents its vehicles had suffered. Like in any good organization, this information was analyzed to identify trends and problems.

The organization found that they had a rate of 6.9 accidents for every one million kilometers traveled. The organization decided that this figure was too high and that they needed to do something to help reduce it. As a first step, they looked at all aspects of their transport management system and its operation. From this analysis, they formulated steps to help reduce the crash rate including:

#### **Strict Implementation of Procedures and Regulations**

Many existing regulations on health and safety and vehicle use were not being enforced. These regulations were reviewed and improved, and where gaps were found, new procedures were put in place. Training on all procedures was carried out and the procedures were subsequently enforced.

## **All Crashes Centrally Recorded and Analyzed**

To find out their actual crash rate, the organization had to invest time, resources, and money. As part of the improvement plan, they implemented a system and procedures to centrally gather all data so that it could be analyzed and acted upon much more efficiently.

## **Safety Dissemination**

Safety manuals were given to all vehicle operators and each vehicle was marked clearly with safety indicators (maximum speeds, reminders to wear seat belts, etc.) Special safety manuals for new drivers were developed and introduced as a new training element. The safety aspects of driving and the need to obey local and national laws, as well as the need to follow best practices, were emphasized.

## **Regular Driver Training and Driver Tests**

Previously, driver training had been occasional, was not monitored, and there was no retraining conducted. To ensure standards were met, new tests were introduced for new drivers as part of implementing regular assessments and retraining.

With the implementation of all of these steps, the crash rate was soon reduced from 6.9 to 5.76 per million kilometers traveled. With commitment and the right approach to health and safety, the NGO showed that there can be a positive impact on safety. Not only did it save money through lower insurance and vehicle repair and replacement costs, but it also reduced the risk of death or injury from its vehicles.

- How does this case study compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far?



## **Self Assessment**

1. What issues must an operator be mindful of to operate a vehicle safely?
2. Name some of the safety equipment that a vehicle should have.
3. Briefly describe the responsibilities of a vehicle operator directly involved in an accident.
4. Briefly describe the six steps to follow at the scene of an accident.
5. What type of insurance generally meets minimum coverage requirements?
6. What should be considered when insurance policy renewal approaches?
7. What storage facilities might fall under the health and safety concerns of transport management?
8. Name some of the issues that must be kept in mind when setting up a vehicle storage facility.

## Self Assessment Answers

1. What issues should an operator be mindful of to operate a vehicle safely?
  - Concentration and fatigue.
  - Anticipation.
  - Pedestrians and animals.
  - National and local speed limits.
  - Breakdown.
  - Vehicle care.
2. Name some of the safety equipment that a vehicle should have.
  - Warning triangles.
  - Helmets.
  - First-aid kits.
  - Fire extinguishers.
  - High-visibility vests and jackets (and other protective clothing).
  - Puncture repair kits.
  - Shovels.
  - Winches and tow ropes (or cables).
  - Water cans.
  - Spare fuel.
3. Briefly describe the responsibilities of a vehicle operator directly involved in an accident.
  - The vehicle operator, if not hurt, is responsible for taking charge of the situation. If they are unable, any uninjured passenger should do so, including completing a crash/incident report.
4. Briefly describe the six steps to follow at the scene of an accident.
  - Step 1: Determine if danger exists (e.g., injury, fuel leaks or poor visibility)
  - Step 2: If no danger exists, identify injuries and seek medical assistance and/or police assistance.

- Step 3: Put up warnings for other road users and remove dangerous items from the road. Do not move anything else until the police have inspected the site. Alert the organization as soon as possible.
  - Step 4: Deal with other parties/vehicle drivers involved. Do not make agreements with anyone, do not sign any documents, and NEVER admit liability.
  - Step 5: Before leaving the scene, obtain vital information, such as name(s), address(es) and any insurance details from the operator(s)/owners of all other vehicles involved.
  - Step 6: Complete the crash/incident report
5. What type of insurance generally meets minimum coverage requirements?
    - Third party coverage
  6. What must be considered when insurance policy renewal approaches?
    - Analyze records of claims against insurance providers to monitor their performance and determine the value of their services.
  7. The storage of what type of materials and equipment might fall under the health and safety concerns of transport management?
    - Fuel.
    - Oil or lubricants.
    - Other hazardous materials (e.g., chemicals and cleaning materials).
    - New or used spare parts.
    - Workshop tools, equipment, and machinery.
    - Vehicle equipment.
    - Drugs, medicines, and cold chain equipment.
    - Stationery.
  8. Name some of the issues that must be kept in mind when setting up a vehicle storage facility.
    - Thoroughly training the staff in safe working practices.
    - Establishing accident reporting systems.
    - Establishing first aid and emergency procedures.
    - Performing regular stock checks to prevent misuse or theft.
    - Establishing specific procedures for fire and explosion.

- Establishing enforceable regulations against matches, cigarettes, and other types of smoking inside or near the storage facility.
- Ensuring the safety of lighting used in and around the facility, including avoiding unprotected lights (naked lights), oil lamps, and gas lanterns.
- Ensuring adequate ventilation.
- Ensuring cleanliness and the absence of water contamination.
- Preventing spills (to ensure fuel does not get into water systems or cause any other environmental damage).
- Installing storage vessels or containers and fixed delivery pumps under professional supervision, and ensuring their regular inspection by competent authorities.
- Ensuring adequate distance of the facility from homes or work places.
- Informing all appropriate authorities of the facility's operation.
- Regularly monitoring health and safety procedures.



# Module 5. Human Resources

## Introduction

By the end of this module, you will be able to:

- explain the relationship between transport management and human resource development;
- create an organizational chart, specifications, and job descriptions for the staff in your transport structure;
- describe the basic principles of the recruitment process that is used to begin building an effective transport workforce;
- describe key human resource development processes to help develop and retain a transport workforce; and
- link essential human resource management issues to the development of an overall transport management policy.

Please note that the purpose of this module is not to teach human resource (HR) development, which is a significant topic that goes well beyond the scope of this guide. If your organization has an HR Department, always go there first for support, advice, and information. There are also many HR guides and manuals available.

## Organizational Structure

Transport is a means by which health services are delivered. Thus, transport management rests with the person(s) responsible for managing service delivery.

Designing an organizational structure for a transport management system depends entirely on what kind of organization it is meant to serve. Is it big or small? Is it independent or part of a bigger organization? What control over its structure do immediate managers have?

While it is hard to define how human resources for health transport should be organized, this guide provides a typical example and sets out the main tools for defining a structure and analyzing the work that will be expected of each staff member; including current employees and expected (or desired) hires.

The question of who is responsible for a specific transport management task must be determined based on the situation that exists in a given organization. The decision of which HR structure is best for a particular organizational situation depends mainly on:

- the size and structure of the overall organization;
- the size of the vehicle fleet; and
- maintenance arrangements for the fleet.

## **Staff Management and Capacity**

For all posts and at all organizational levels, it is necessary to demonstrate that sufficient staff capacity and authority exists to oversee transport management and to effectively run transport services. Not only must this capacity exist wherever there are transport operations, but each staff member also needs to be fully aware of how their work fits into the overall structure.

Initially, a structure should be developed that demonstrates the capacity within an organization and how each role contributes to that capacity. Staff that carry out operational transport tasks include vehicle operators, mechanics, engineers, transport and garage officers and managers, transport technical advisors, trainers, and assessors. Personnel in managerial and strategic posts ensure that the mechanisms for communicating transport policy, regulatory requirements, operational controls, and local procedures are in place and are effective. Some staff won't have transport specific roles; like managers and administrators in other departments, including senior managers. Other management responsibilities cut across operational and wider roles, such as transport officers.

It is also important to recognize that, while certain tasks may be the main responsibility of a specific person, encouraging staff to work together can offer the greatest contribution to achieving targets and goals. The quality of teamwork and participation by policy makers, health managers, transport officers, vehicle mechanics and operators, and others is a primary factor in the success of health programs.

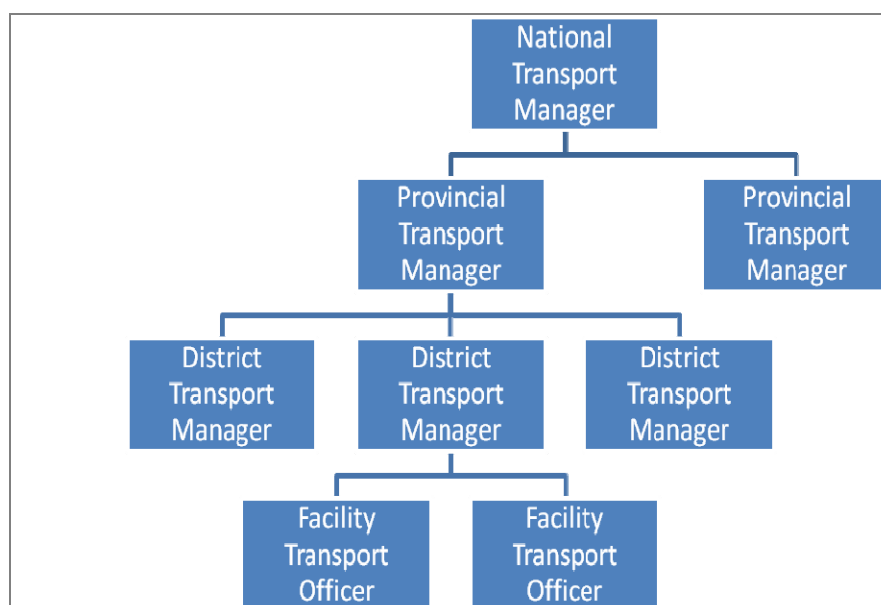
## **Organizational Charts**

An organizational chart clearly shows each transport-related post in an organization. It is useful for management and planning purposes, and includes posts already in place and occupied, those that exist but are vacant, and those that are required.

Illustrated below is an example of a typical transport management organizational chart for a transport management system. The clear advantage is that one can easily see who manages whom, and also where there are links between and across lines of management responsibility; or where links are missing and need to be included.

Being able to clearly follow the lines of management control is particularly important when there are both geographic and functional responsibilities. For instance, an organizational chart can show the management of a local Transport Officer as being the joint responsibility of the provincial health director (at geographic levels) and the national transport manager (for functional tasks).

**Figure 14. Organizational Chart for a Health Service Transport Management System**



## Person Specifications

Look at your organizational chart to see if there are functional gaps that need to be filled. You may already have identified certain posts, but not yet found anyone to fill them. Elsewhere, there might be breaks and gaps in the lines of management responsibility. To fill these, you may need to create new positions (and new lines of management responsibility) if you can't reasonably reorganize the existing structure.

Begin to develop specifications for vacant or new posts by writing down the experience, skills and qualifications required. For example, think about the specific characteristics of a new Transport Officer in relation to the operational and strategic management links they will have.

Job qualifications will depend on where the post is within the structure (i.e., its management level) and the type of post it is (i.e., more technical or more managerial). The organizational chart helps inform this.

Prioritize the skills, experience, and other characteristics that are expected, knowing that it is unlikely you'll find someone with the exact mix of skills.

Include particular characteristics that are needed (e.g., the ability to lift weight over 70 kg), any geographical or other special considerations (e.g., nighttime work shifts), the timescale in which you wish to fill the post, how long the post will last (i.e., permanent or temporary), and descriptions of the organizational culture and of the design of the job.

Finally, it is essential to think carefully about how a post-holder will spend most of their time. This helps managers and the candidate see how their work fits into the bigger picture of the whole organization. For example, it may be concluded that the main point of the TO post described above is to link transport operational practices to management decision-making. Understanding the core role that the new TO will play in the wider team helps achieve successful recruitment and will help the newly hired person meet expectations.

## **Job Descriptions**

A job description details the actual nature and content of the work itself. It is important to note that, while some current posts may not have accurate specifications, all should have accurate job descriptions. Where there are none, these should be put in place as a matter of priority.

When writing a job description for the first time, it is essential to start with the specifications. This applies even in cases where someone is already occupying the post. This also helps introduce objectivity about what the post involves instead of relying on what characteristics the existing post-holder has.

After drafting the description, the post-holder (if there is one) and their manager will review and update it periodically. The final job description should at least include:

- a job title, location, and grade;
- reporting lines and line management in the organizational structure;
- an overall purpose that summarizes responsibility and accountability;
- key tasks, including notes on measuring performance;
- other tasks and responsibilities; and
- a publication date (so that it can be updated regularly).

It is important to make sure that team tasks and responsibilities are included. Some of the key tasks of the transport officer shown above might be—

- Day-to-day operational management of transport.
- Being the first point of contact for transport issues.
- Receiving movement plans and preparing transport schedules.
- Agreeing on schedules with management, and reviewing them against actual performance with vehicle operators and others.
- Raising awareness about transport issues with management and others.
- Preparing agendas with the Transport Manager for all operational team meetings and participating in those meetings.

## **Recruitment Processes**

Carefully thought-out specifications and job descriptions go a long way to identifying the right person for a post. In addition, a thorough recruitment plan for the post needs to be developed. It should include details about:

- advertising, including when, where, and how the vacancy will be publicized, and ensuring that appropriate guidelines are followed;
- budget, including all recruitment costs, such as advertising, interviewee travel expenses, and any other interviewing costs;

- timescales that ensure recruitment will occur at the right moment for the organization (e.g., at a time when handover with a current post-holder can happen);
- interview plans, including how to shortlist interviewees, who will interview them, when and where interviews will take place, what resources are needed, how to assess specific skills, what references are required, and how final selection is determined; and
- induction plans for appointees, including an introduction to the overall organization and the team(s) most closely concerned, any handover, and specific training needs identified during recruitment.

## **A Competent, Committed Workforce**

Transport systems deliver many vital health services and staff must have the skills to manage these complex and diverse systems. Good selection procedures are essential to identifying and recruiting the best candidates, thus developing key selection criteria to assist in recruitment is necessary.

Transport management should be seen as much of a genuine career as any other professional track in an organization. To promote this view, an organization should ensure that staff members are motivated to stay in their roles, and that there are strong performance management procedures, training, and career-advancing opportunities available to them.

The following sections discuss ways of developing the commitment and skills of a staff member, highlighting two useful types of performance management methods: staff reviews and vehicle operator assessments.

## **Keeping Good Staff**

Many factors that are specific to an organization, but that may be beyond direct control, will affect how staff members feel about their work. Still, once the right people are recruited, everything possible should be done to retain them. To have a strong, positive impact on retaining key staff members, it is necessary to develop and sustain:

- a supportive management culture that is focused on the role that transport plays in health service and the contributions that staff members can make;
- a positive working environment in which clear, realistic, and timely targets are set, and achievements are recognized and rewarded;
- thoughtfully-designed and realistic workloads;
- access to peer groups and professional bodies;
- staff development plans, including the provision of funding;
- recognition of training qualifications as they are achieved;
- appropriate reward packages (see the ‘Incentives’ section of this module below);
- opportunities for advancement and promotion;
- fair terms and conditions of service;
- equal opportunities (with due regard to gender and disability); and
- clear discipline and grievance procedures.

## **Incentive Schemes**

Incentives may have a positive effect on motivating and retaining good staff. However, if they are seen to be unfairly applied, their impact is likely to be largely negative. By definition, incentives are not directly linked to promotion and salary review. They are for staff members who do particular tasks well and are also usually directly linked to performance.

Monetary incentives are frequently used, but they can also create difficulties and therefore should be used with caution. Challenges encountered with monetary incentives include that staff members—especially those not receiving monetary incentives—may see them as undeserved or hidden promotion. Ultimately, this could create barriers to developing a team culture. In addition, providing incentives from finite, dedicated budgets means that less money is available for other transport activities, which may adversely affect the whole team's work.

Outstanding individual performance and team performance can be rewarded through non-monetary incentives, such as driver of the month or best fleet of the year awards, certificates of achievement, or a team party. Such incentives can be developed so that any deserving individual in an organization can win, and these rewards can be adapted to meet the particular context and needs of your own workplace.

## **Staff Reviews**

Undertaking regular and structured staff reviews is a key process in developing effective and committed team members. They allow managers to assess the performance of each of the key individuals who report to them. Reviews should equally take achievements and failures into account, and set future objectives through joint planning. It is essential to identify areas where personal performance did not meet standards and to determine contributing factors (e.g., lack of training, equipment, or support staff) and agree upon remedies. The process should be in place across all management levels.

### **Review Purpose**

The aim of a performance review is to provide a forum for discussion that is honest and open, conducted on a one-to-one basis, relates to all aspects of the staff member's work, and that measures achievements against previously defined targets and objectives. It should include current difficulties, future plans and targets, and be conducted in a relaxing atmosphere away from normal daily distractions. To be effective, the staff member and their manager must first agree on and understand the following three principles:

- From an organizational stand-point, the manager and the staff member should both have a copy of the job description to ensure proper discussion of placement (i.e., the job being evaluated is the one originally expected of the staff member), performance, conduct, promotion, and pay. The job description may require updating as a result of this discussion.
- Feedback and evaluation will provide both the staff member and the line manager with a structured process and a way to improve performance. This is an opportunity to learn from past experience, develop working relationships, and bring out any existing or potential areas of conflict so that agreement can be reached on resolving them. Using a staff review procedure document with key questions helps both people prepare.
- Development and coaching builds on recognized strengths and improves any unsatisfactory areas of performance. Both the line manager and the staff member should work together to

agree on targets, identify any particular training needs, set a timetable, and document these details.

### **Skills for and Managing Reviews**

Preparation is essential. Both the line manager and the staff member must set aside individual time before the review to think about the key points to cover. It is useful to look at any previous reviews and:

- review past objectives that were set by both parties, agreed-upon changes, and necessary resources;
- note progress on each point (ranging from ‘not started’ to ‘fully achieved’);
- note objectives that were met, successes, challenges, lessons learned, ideas for improvement, and necessary resources or structural changes; and
- review objectives again to decide which incomplete tasks will appear in the next work plan and how much time is needed for each.

Poorly-done reviews waste time and may be counter-productive. As noted above, good reviews are:

- timely, with enough time allowed for preparation, discussion, documentation, reflection, and follow-up.
- well-prepared by both parties and include jointly agreed upon objectives;
- based on open discussion and two-way communication (this is the principle responsibility of the manager, who has the most authority);
- documented and agreed upon by both parties; and
- followed up in ways that are helpful to both the staff member and the line manager.

### **Vehicle Operator Assessment**

A vehicle operator assessment ensures that vehicle operators work safely and competently, and to an acceptable standard. It identifies if training is needed, such as for more efficient driving or safe riding of a motorcycle. The assessment should be separate from the staff review. Usually, a manager will:

- appoint a vehicle operator only after they satisfactorily complete a thorough assessment as part of the interview process;
- provide any further training required (e.g., off-road vehicle operation); and make regular assessments (at least annually) and provide further training throughout the staff member’s career.

The vehicle operator assessment is an essential part of maintaining standards within a TMS. It must be reliable, cost-effective, and sustainable. It must also be respected by the vehicle operators, by those who use the vehicles, and by management. Managing assessments, including choosing the person who carries them out, requires careful thought.

## **Choosing an Assessor**

When choosing an assessor, it is best to look for a staff member who is an experienced vehicle operator, who knows the organization's operational conditions well, is respected, and can be objective when considering the competence measures set for assessments. Consider using an external agency to train assessors in the skills they need. This will help in providing confidence and in eliminating problems that can otherwise occur where the person is assessing more senior staff.

A reputable outside agency (e.g., a good transport company, training institute, consultant, or the police) can provide assessors. This may not be a first choice because it entails expense and loss of management control in the assessment process, but it is an excellent solution when suitable assessors cannot be found within an organization.

Once an assessor is chosen, plans should be drawn up to communicate details about the vehicle operator assessment to all concerned parties: the operators, managers, users, and, of course, the assessor.

## **Assessor Objectivity**

Skills in assessing and communicating are essential to meeting the demanding standards of a vehicle operator assessment. Most operators are sensitive about their abilities, so it is important that the assessor remain objective. It should be understood by everyone that the assessor makes recommendations based on the assessment results, but defers to the relevant manager(s) for all final decisions.

To reinforce the objectivity of the assessment, responsibilities for training vehicle operators should be kept separate from the assessment, regardless of whether an assessor is appointed internally or externally.

## **A System for Vehicle Operator Assessments**

Any authorized person who operates a vehicle should be assessed. This includes both regular and occasional vehicle operators at all operational and management levels. Normally, all operators should take an initial assessment followed by annual reviews. The initial assessment will be longer and more difficult than the reviews.

Operators with poor safety records should be assessed more often, and different kinds of assessments should be conducted depending on vehicle types and driving conditions (e.g., rural roads or night-driving). An example of the assessor's form can be found in Appendix A of this guide. The four stages of the assessment are:

- The assessor studies previous assessment reports, vehicle maintenance, and accident records of the vehicle operator to highlight issues that require special attention.
- Before starting the vehicle, the assessor spends about 30 minutes on practical issues and questions (sections 1, 2 and 3 of the form).
- After starting the vehicle, the assessor observes the operators practical skills and awareness (section 4 of the form).
- After the vehicle has been turned off, the assessor provides feedback and discusses the information recorded on the form with the operator.



## **Feedback and Documentation**

Besides providing positive comments to the vehicle operator, the assessor must also explain what recommendations they will make to managers on resolving problems and weaknesses. Feedback may include—

- Areas for improvement before the next assessment.
- Areas where specific training and further assessment is required before the staff member may operate any vehicle or a particular type of vehicle.
- Detailed feedback where the assessment results show that the staff member should not operate a vehicle belonging to the organization at all.
- Positive recommendations for training to operate other types of vehicles, if there is a need and the operator is interested.

It is essential to ensure that results and recommendations remain confidential between the assessor, operator, and line managers. The completed form is kept in the vehicle operator's personal file. In addition, the HR department should keep a vehicle operator record (see form in Appendix A) for all staff allowed to operate vehicles.

## **Staff Development and Training**

A good staff development program increases capability and effectiveness for meeting personal and organizational goals. Achieving this is the line manager's key responsibility, but both managers and staff member must have a share.

Managers should provide good supervision to staff based on agreed objectives and work, provide support and training opportunities, and make sure that such activities are well planned and budgeted. A staff member should actively seek chances for self-development in agreed-upon areas and make the best use of opportunities that are provided.

Routine monitoring and supervision of work, staff reviews, and job descriptions are all ways to identify development and training needs. Staff members may need to improve existing skills or knowledge, unlock potential, or gain new learning. It is important to recognize that development may be useful for a whole team, not just individuals.

Always check the relevance of a possible staff development opportunity against work objectives to help ensure that it is fully recognized by everyone and that costs are justifiable. The manager and individual or team should agree upon and record:

- specific performance and development objectives to be met;
- knowledge and skills needed to meet these objectives;
- plans and budgets to gain the skills and knowledge needed; and
- methods to monitor progress towards completing these plans.

## **Types of Training**

In practice, many staff development opportunities take place in the workplace, rather than off-site in organized training. To realize the potential of on-the-job-training, it is necessary to discuss and plan

learning opportunities with staff and to link them to work objectives. Possibilities for on-the-job-training include—

- Working groups, special assignments, or projects.
- Representation and deputizing (e.g., enabling a staff member to work in a more senior role for a short time).
- Job rotation (within the organization) and job secondments (to another organization);
- Team meetings (i.e., asking different staff members to chair the meetings, or simply by including focus on key staff development issues during the meetings).
- Planned project visits.

A training course (off-the-job training) can be run at work or externally. It is an important way of providing expert, specific, and focused training to staff. Although courses can add significantly to staff value and effectiveness, they can also be expensive.

Staff members who are sent to courses without being consulted first or who don't understand the purpose are likely to be anxious and poorly motivated. It is thus essential to make sure that there is a match between a person's identified needs and a course's objectives. These objectives will probably include—

- Increasing job awareness (i.e., of technical, operational, legal or financial aspects).
- Acquiring or developing skills (e.g., interviewing, presenting, or negotiating).
- Increasing self-knowledge (e.g., career assessment).

Lessons from the course need to be translated into better or new practices. Staff members can be supported to do this by working with their managers to develop a course action plan that comprises:

- a statement of what the course objectives were, how they related to the identified needs of staff members, and what will be improved or changed as a result;
- resources needed to achieve improvements and changes, as well as a related timescale; and
- how and when progress will be monitored.

Recognized courses for health service TMS are available, such as in—Transport management.

- Fleet management.
- Transport planning.
- Budgeting and financial planning.
- Health and safety.
- Defensive driving.
- Safe riding (motorcycles and bicycles).
- Maintenance.
- Software use (various TMS and logistics packages)

## **Developing Specific Policy Guidance**

### **Private Vehicle Use**

Personal use of office vehicles is one of the most common issues in transport management system development. Vehicles are an expensive resource that can be misused if proper controls are not applied. In situations where there are few controls, the use of a vehicle can often be considered a personal privilege of office.

When a senior staff member uses a vehicle in this way, their motivation to respect proper operational standards is often good. Treating a vehicle as their own can mean that managers look after the vehicle well and avoid abuse. But, under these conditions, vehicles are not always used to their best effect for service delivery. Better vehicles may be reserved only for senior staff members' work, effectively removing them from general service. Avoiding such situations by pooling vehicles is one of the most important principles of effective transport management.

This problem becomes even more difficult if senior staff members' contracts include provisions for personal use of a vehicle after working hours. In their eyes, this may justify control of the vehicle at all times. In the absence of any other type of control, this is potentially a useful mechanism. However, having a TMS in place eliminates this need and makes personal control of vehicles an obstacle to overall effective management.

### **Locally Applied Guidelines**

Sometimes, transport-related policies determined at the national level may be inappropriate at the local level. After all, national policy must be general enough to cover all relevant activities, but may be too general for local transport needs. Development of an overall transport policy will be discussed later in the guide.

Local guidelines and SOPs were covered in Module 1 of this guide. It was noted that, where there is only a national policy, it is necessary to implement policy issues at the local level that are not covered in the national document. There are two options for developing operational transport policies locally: developing a local policy in the context of a specific transport situation that follows the national policy or establishing standard operating procedures (SOPs) that are locally specific.

A local policy developed in the context of a specific transport situation that follows the national policy can be a new, stand-alone policy or an appendix to the national policy. This approach will be explained in Module 8.

SOPs that are locally specific can be introduced using the national policy as the guideline, and will be directly relevant to a specific transport situation and implemented as either stand-alone procedures or as an appendix to the relevant national policy.

With either of these options, it is necessary to follow all guidelines set out for overall policy development. If the national policy covers all aspects of transport to a satisfactory level, a local policy should not be created.

## Case Study

### Personal Use of Vehicles

This case study is a description of a real situation that occurred in the country program of a large NGO. It had a senior management team of 12 and a fleet of about 30 vehicles. Senior managers' contracts included the right to "reasonable" use of the vehicles outside of office hours. The term "reasonable" was not specifically defined, though.

A number of these staff members would reserve the use of 'their' vehicles during office hours to ensure that, if they needed during the day, the vehicles would be available. When a TMS was introduced, new conditions were put into practice. All vehicles were to be pooled and their keys given over to the transport manager. If an assigned vehicle was needed because it was best suited to a specific job, staff would use an alternative vehicle.

All private use was logged. A nominal allocation for each staff member of 'free' kilometers was calculated to cover home to office journeys each week. Private use beyond that allocation was paid for based on a per km rate that was appropriate to the vehicle.

There was resentment when this controlled system was first introduced. It was seen by many as the loss of a contractual right. A period of consultation was necessary during which principles of fairness to the NGO and equitable standards among all staff members were discussed.

In practice, the contractual right to use a vehicle was retained, but senior staff had to pay the at-cost rate for private use beyond their agreed allocation. This took time to accept. But, as the staff saw improvement in overall fleet management and its positive impact on program delivery, as well as a reduction in actual fleet size and high vehicle availability, they accepted the situation.

This positive feeling was reinforced as their working life around transport became easier. Over time (many months), the system became accepted as being transparent and fair, and as a way to nearly eliminate potential abuse of vehicle usage.

- How does this case study compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far?

## **Self Assessment**

1. Name the three main factors involved in determining the best human resources structure for a particular situation?
2. Briefly explain what a staff organizational chart is.
3. What are specifications and job descriptions?
4. What are the five main details to think about in terms of recruitment?
5. Briefly explain how to develop a competent and committed workforce, particularly in terms of staff retention, incentives, and reviews.
6. Briefly explain the keys to effectively managing staff development and training.

## Self Assessment Answers

1. Name the three main factors involved in determining the best human resources structure for a particular situation?
  - The size and structure of the overall organization.
  - The size of the vehicle fleet.
  - The maintenance arrangements for the fleet.
2. Briefly explain what a staff organizational chart is.
  - An organizational chart clearly shows each transport-related post in an organization. It is useful for management and planning purposes, and includes posts already in place and occupied, those that exist but are vacant, and those that are required. An organizational chart allows one to see who manages whom, and also where there are links between and across lines of management responsibility; or where links are missing and need to be included.
3. What are specifications and job descriptions?
  - Specifications: experience, skills, and qualifications required of a person to do the work
  - Job description: the actual nature and components of the work itself.
4. What are the five main details to think about in terms of recruitment?
  - Advertising.
  - Budget.
  - Timescales.
  - Interview plans.
  - Induction plans for appointees.
5. Briefly explain how to develop a competent and committed workforce, particularly in terms of staff retention, incentives, and reviews.
  - Your answer should include the following points:
  - Good selection procedures are essential to identifying and recruiting the best candidates, thus developing key selection criteria to assist in recruitment is necessary.
  - To promote the view of transport management as a genuine career, an organization should motivate staff members to stay in their roles, mainly by ensuring that strong performance management procedures, training, and career-advancing opportunities are available to them.

- Two useful types of performance management methods for developing the commitment and skills of a staff are staff reviews and vehicle operator assessments.
6. Briefly explain the keys to effectively managing staff development and training.
- The manager and team members (individually and/or as a group) should agree upon and record: specific performance and development objectives to be met; knowledge and skills needed to meet these objectives; plans and budgets to gain the skills and knowledge needed; and methods to monitor progress towards completing these plans.





# Module 6. Monitoring and Evaluation

## Introduction

By the end of this module, you will be able to:

- recognize how to collect and use information for improving transport management and distribution;
- explain the importance of having a structured transport management information system;
- use Key Performance Indicators (KPIs) for transport management and distribution; and
- present, interpret, compare, and use KPIs for improving decision making.

## Transport Management Information

People often view recording and collecting transport management information as unnecessary. After all, in many systems, staff members fill out transport forms and reports without fully understanding their purpose and then submit them to managers who do little more than file them away.

Quality information is needed for good decision making at all levels of an operation. The ultimate purpose of transport management information is to inform opportunities for improving overall efficiency without increasing staff workloads. Knowing what information to collect; when to collect it; who should collect it; and how it will be analyzed, used, and communicated provides the basis for a useful and clear management information system.

To be effective, information must flow easily from collection points to the point at which it will be interpreted and acted upon. Everyone involved in the collection and completion of management information should have access to data, and results should be visible and meaningful to them.

An organization can only determine if transport policy goals and objectives are reached by monitoring and evaluating performance through the use of unified data sets within a structured transport management information system.

Monitoring may be perceived by some as a way to find faults, but a good monitoring plan that is built into work programs from the beginning brings benefits by measuring all progress towards meeting objectives. It may also assist in using creativity to find better ways of doing things. The following four questions are useful to consider when deciding how to monitor:

## Why Monitor?

Clear reasons should be established for monitoring any activity. For example, monitoring could be used to determine the best vehicle replacement points.

## **What to Monitor?**

What will be monitored depends on the reasons for monitoring. Finding the best vehicle replacement points, for example, would be informed by monitoring the all-inclusive running costs per km to determine whether it is appropriate and cost-effective to continue operating vehicles.

## **How to Monitor?**

It is best to make use of existing information (e.g., fleet statistics) whenever possible. If new information is needed, it should be kept simple, and it should be clear how and why the information will be used. It must be also reliable and relevant. In the example of determining vehicle replacement points, information in the period transport report would be used.

## **When to Monitor?**

Knowing when to monitor should be informed by answering the previous questions (i.e., why, what, and how?). For example, monitoring could be done every period to determine vehicle replacement points.

## **Key Performance Indicators**

Eleven Key Performance Indicators (KPIs) are described below, including seven for transport management and four for distribution. Realistic targets are suggested for most of the KPIs, based on performance and experience in common situations. These targets provide important rules of thumb, but it is ultimately impossible to determine the targets in absolute terms.

### **Transport Management KPIs**

Performance data should be recorded at the end of each reporting period on the period transport schedule (see form in Appendix A). A period generally means one calendar month. KPIs should be reviewed every period by vehicle, vehicle type, and as a fleet average. Providing this information in the period report makes it much easier for managers to review actual performance against targets, identify problem areas, and plan follow-up action.

The underlying power of KPIs is found in analyzing their relationships to each other, as well as to trends over time. It is important to look at data over a long period of time to get a full and accurate picture. When a change in a trend is identified, it must be investigated. For example, an organization may wish to identify which vehicle is the most fuel-efficient for a particular route. Maintaining accurate KPIs allows for cost comparisons that will quickly inform an answer.

#### **KPI 1—Distance Traveled**

Distance traveled is calculated from the vehicle log sheet (see form in Appendix A) by subtracting the final odometer reading from the first reading for the period. A low number of km/period for a vehicle is often an indication of poor planning and scheduling.

### Box 8. KPI 1 (Distance Traveled) Calculation Formula

#### Formula

current odometer reading – prior odometer reading = distance traveled

#### Example

36,346 km – 32,822 km = 3524 km traveled

#### Targets

four-wheel vehicles: 3000 km/month

motorcycles: 1000 km/month

The targets shown in the above box are not absolute, but are instead indicative. For example, the km/period may be much higher in fleets used for seven-day work weeks.

### KPI 2—Fuel Consumption

Fuel consumption is the number of kilometers traveled for each liter of fuel used. Fuel purchasing information should be cross-checked with fuel issue vouchers and invoices from fuel suppliers. To determine fuel consumption, divide the total number of km traveled by the quantity of fuel used during the period. This information can be displayed effectively on a graph by plotting fuel consumption against periods of the year.

### Box 9. KPI 2 (Fuel Consumption) Calculation Formula

#### Formula

total distance traveled ÷ total fuel used = fuel consumption

#### Example

3524 km ÷ 339 liters = 10.4 km/liter

#### Targets

100 cc motorcycle (2-stroke): 22–27 km/liter

1300 cc sedan (gasoline): 12–15 km/liter

1600 cc sedan (gasoline): 11–13 km/liter

two-wheel drive pick-up (gasoline): 8–11 km/liter

4 X 4 pick-up (diesel): 7–10 km/liter

4 X 4 station wagon (diesel): 6–8 km/liter

small truck (3–9 ton) (diesel): 3.5–5.5 km/liter

Fuel consumption varies by engine size and fuel type. It also depends on the vehicle operator's skills, speeds driven, the vehicle's mechanical state, the loads it carries, and road conditions. Fuel consumption will be higher if the operator uses gears poorly or drives too fast. Heavy loads and poor roads also lead to increased fuel consumption.

Poor fuel consumption should not be automatically assumed to be a result of load issues or driving conditions. For example, it is important to investigate whether fuel is being diverted from official use. And, oftentimes, consumption data may seem low because one or several fill-ups were not recorded on the vehicle log sheet. This can be cross-checked by comparing fuel issue vouchers or fuel purchase receipts to entries on the log sheet.

### KPI 3 - Running Cost per Kilometer

The running cost per kilometer is the cost of moving a vehicle one kilometer during a period, and includes fuel, maintenance, and tire costs. Information on vehicle running costs is useful when deciding which vehicles need replacing and what type of vehicle to replace them with. It may be possible to replace vehicles with more economical types by using this information. (See Module 3 when considering fleet planning and vehicle replacement.)

#### Box 10. KPI 3 (Running Cost Per km) Calculation Formula

##### Formula

$( [\text{quantity of fuel used} \times \text{fuel price}] + [\text{maintenance cost} + \text{cost of tires}] ) \div (\text{total kilometers traveled}) = \text{running cost/km}$

##### Example

$( [339 \text{ liters} \times 0.43 \text{ USD}] + [16.66 + 50.00\text{USD}] ) \div (3524 \text{ km}) = 0.06 \text{ USD/km}$

Specific target figures are not given above because there are many variables to consider, such as vehicle size, engine size, vehicle age, and the cost of spare parts. It is possible to identify problem vehicles or costly servicing arrangements by comparing running costs for similar vehicles.

### KPI 4 – Availability

Availability is the condition of the fleet and can indicate the success of fleet management. It is a function of how much time a vehicle was broken down or undergoing maintenance, and how much time was it ready for use. Availability is calculated as a percentage of the total possible days in a reporting period:

#### Box 11. KPI 4 (Availability) Calculation Formula

##### Formula

$( [\text{total days in the period} - \text{total days in the garage}] \div [\text{total days in the period}] ) \times 100 = \text{availability (\%)}$

##### Example

$( [22-2] \div 22 ) \times 100 = 90.9\%$

##### Target

80-95%

It is realistic to expect 95% vehicle availability in a fleet that is well-maintained and whose vehicles are replaced at appropriate times. One hundred percent availability from month-to-month is not necessarily a good thing. After all, unless maintenance is only carried out when vehicles are not

needed for use (i.e., overnight or during weekends), constant availability probably means that the vehicles are not being regularly maintained, which will eventually result in problems. Low availability indicates problems in the maintenance garage.

The implementation of a comprehensive fleet management system, along with appropriate vehicle selection, planned preventive maintenance, and good availability of spare parts, significantly improves vehicle availability.

## KPI 5 – Use

Actual use of a vehicle on the days it is available indicates how efficient operational management, planning, and scheduling of vehicle movements are. Use is calculated by comparing availability data to information on the vehicle log sheet.

### Box 12. KPI 5 (Use) Calculation Formula

#### Formula

$(\text{total days used} \div \text{total days available}) \times 100 = \text{use (\%)}$

#### Example

$(17 \div 20) \times 100 = 85\%$

#### Target

60-95%

Providing additional vehicles to a location should not be considered without first checking that existing vehicles are being used well and a minimum target is regularly achieved. Low use implies that there is still capacity in the current fleet, which is further verified when kilometers traveled are also low. High use in cases where a low number of kilometers are traveled is often seen when vehicles are allocated to individuals or to specific programs rather than being pooled. This also happens with specialty vehicles, such as mobile clinics, that perform important health service delivery work while stationary.

## KPI 6 - Needs Satisfaction

*Needs satisfaction is the single most important KPI* because it compares plans to achievements. It ultimately shows how transport contributes to meeting service delivery objectives.

Since needs satisfaction measures authorized trips made, it is fair to assume that it shows the necessary work that was done. That being said, it does not indicate the priority of the tasks that were carried out. To calculate the percentage of total requested trips that were satisfied in a period, compare information from the trip authority and the period movement plan with the period transport schedule (see forms in Appendix A) and any information on vehicle breakdowns.

### Box 13. KPI 6 (Needs Satisfaction) Calculation Formula

#### Formula

$(\text{number of trips made} \div \text{number of trip requests for official work received}) \times 100 = \text{needs satisfaction (\%)}$

#### Example

$(44 \div 46) \times 100 = 95.7\%$

#### Target

95-100%

An ideal target for needs satisfaction is 100%. However, because emergencies often arise in health service delivery programs, slight drops below 100% should not cause major concerns.

### KPI 7 - Safety

The safety record is obtained from the crash/incident report (see form in Appendix A) and by analysis of critical safety defects found during routine vehicle inspection (and documented in the vehicle maintenance summary – see form in Appendix A). Accidents may indicate that the vehicle operator needs training. Critical safety defects in vehicles or their equipment also imply training needs for vehicle operators and maintenance personnel. Beyond the risks to life, poor safety affects vehicle availability and the cost of insurance premiums.

### Box 14. KPI 7 (Safety) Calculation Formula

#### Formula

number of crashes, incidents, or critical safety defects per vehicle

#### Target

0

Because compromises cannot be made on safety, the KPI 7 target is zero. All instances where this indicator is greater than zero must be investigated and explained.

### Distribution KPIs

The four KPIs that are linked to distribution address the economic, timely, and safe transportation of goods.

### KPI 8 – Truck Fill

As shown in Module 4, truck fill can be measured in several different ways: by weight, volume, or deck/trailer length. The choice of a measurement system depends on the load and the vehicle. Whichever system is used, it is most effective to express the result as a percentage of the total load capacity.

#### **Box 15. KPI 8 (Truck Fill) Calculation Formula**

##### Formula

$(\text{actual load} \div \text{maximum load possible}) \times 100 = \text{truck fill (\%)}$

##### Example

*A 40-foot trailer capable of carrying 26 pallets is loaded with 22 pallets*

$(22 \div 26) \times 100 = 84.6\%$

##### Target

90-100%

When calculating truck fill, it is essential to remember that the load is as important as the vehicle's capacity. For heavy materials (e.g., lead-based items), the weight could be 100% of capacity, while the volume might only be 15%. Or, if the load is cotton, the weight might only be 40% of capacity, but the volume could be 100%. Common sense must be used to decide which measurement to use.

#### **KPI 9 – On-time Delivery**

On-time delivery concerns the arrival of cargo or personnel at a destination. The delivery window that is considered on-time is decided jointly by the delivering and receiving organizations.

Definitions might vary. For a week-long journey, a difference of several hours over the expected time of arrival will probably still be considered on-time. But, for local journeys of a few hours or less, late arrivals of more than 15-30 minutes will be considered true delays. All deliveries that do not arrive on-time should be investigated. KPI 9 is calculated as the percentage of deliveries that were made on-time in a period.

#### **Box 16. KPI 9 (On-time Delivery) Calculation Formula**

##### Formula

$(\text{total number of loads delivered on-time} \div \text{total number of loads delivered}) \times 100 = \text{on-time delivery (\%)}$

##### Example

$(76 \div 84) \times 100 = 90.5\%$

##### Target

100%

The on-time delivery target should always be 100%, but many factors can affect it, including bad traffic, vehicle breakdowns, or lack of drivers. However, consistently not meeting the target is likely due to bad planning, a poor maintenance schedule, bad routing, or human resource problems; or a combination of these.

## KPI 10 – Damages

KPI 10 measures the percentage of equipment or products that are broken, crushed, wet, or damaged in any way during the transport and delivery process.

### Box 17. KPI 10 (Damages) Calculation Formula

#### Formula

$(\text{units of stock damaged during transport or delivery} \div \text{total units of stock delivered}) \times 100 = \text{damages (\%)}$

#### Example

$(123 \div 6500) \times 100 = 1.89\%$

#### Target

0%

A key aim is to avoid damages during transport and delivery. Some of the logistical and financial questions resulting from damaged products include—

- How will damaged stock be returned?
- Whose fault is the damage?
- Who will pay to replace damaged stock?
- How will the damaged stock to be disposed of (especially if dangerous chemicals are involved)?

## KPI 11 – Nonconformity

Nonconformity refers to unexpected events that adversely affect (or could potentially affect) a delivery system, including any aspect of a warehouse or distribution system. All instances of nonconformity should be recorded and investigated.

### Box 18. KPI 11 (Nonconformity) Example

#### Example

The cargo area of a temperature-controlled vehicle carrying vaccines must be maintained between 2 and 8 degrees Celsius. Upon arrival at a destination, the temperature in one such truck was found to be 12 degrees. A simple investigation found that the vehicle's refrigeration system had stopped functioning after it ran out of fuel. As a solution, a new procedure was introduced where each driver checked and, if needed, refilled the refrigeration fuel tank before every journey.

#### Target

0

Nonconformity is specific to a range of requirements linked to each process or product. All organizations should develop and agree upon definitions of nonconformity. Although the nonconformity target is always zero, it is less likely that achieving this on a consistent basis means that an ideal has been reached and more likely that distribution monitoring is insufficient.



## Improving Transport Performance

Collecting data is only the first part of the monitoring and evaluation process. As suggested above, it is important to regularly compare data (including for each vehicle) with targets and determine where follow-up is needed.

Lower satisfaction KPIs mean bigger problems to address. Identifying why the satisfaction KPI is low requires reviewing other indicators. For example, lack of satisfaction may be linked to low vehicle availability, which in turn may be due to fleet maintenance problems. Or, where poor satisfaction is directly related to low use, problems with vehicle pooling or planning may be the root cause. The KPI option tree illustrated on the next page is a useful management tool for identifying problems.

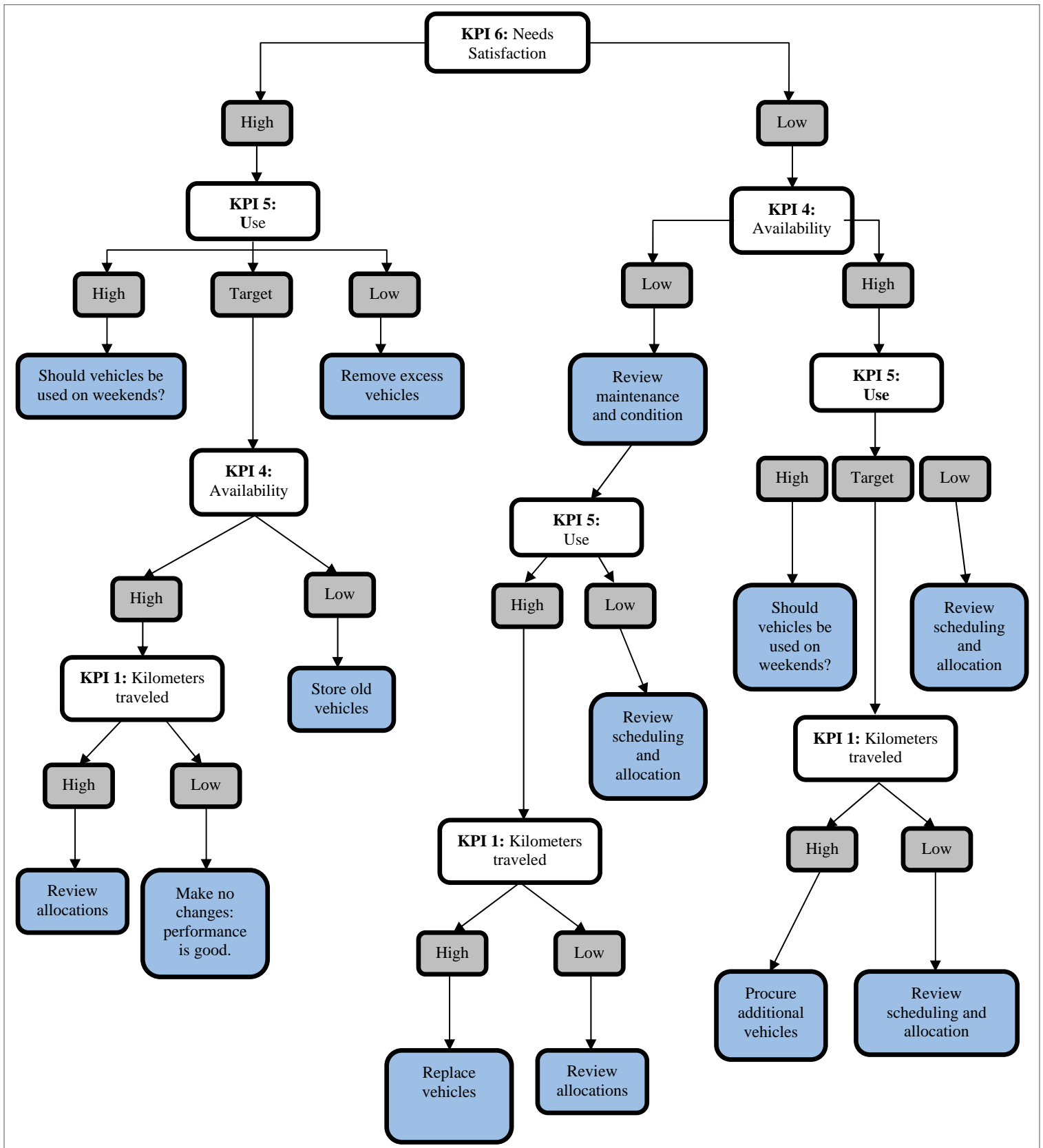
### Box 19. Using the Options Tree

The KPI options tree on the next page shows an example of how to investigate and follow up needs satisfaction (KPI 6) monitoring, including cases of high satisfaction and cases of low satisfaction.

The tree includes three different colors or boxes: white (KPIs), grey (status), and blue (decisions). Begin at the top of the chart in the white KPI 6 box. If the percentage of total requested trips that were satisfied in the period you are considering was on or above target, proceed to the grey “high” status box on left side of the tree. If the percentage was below target, move instead to the grey “low” status box on the right side of the tree.

From here on in, you will link through to new KPIs that are related to needs satisfaction. By consistently following the grey boxes that reflect status, you will reach a decision point in a blue box

**Figure 15. KPI Option Tree**



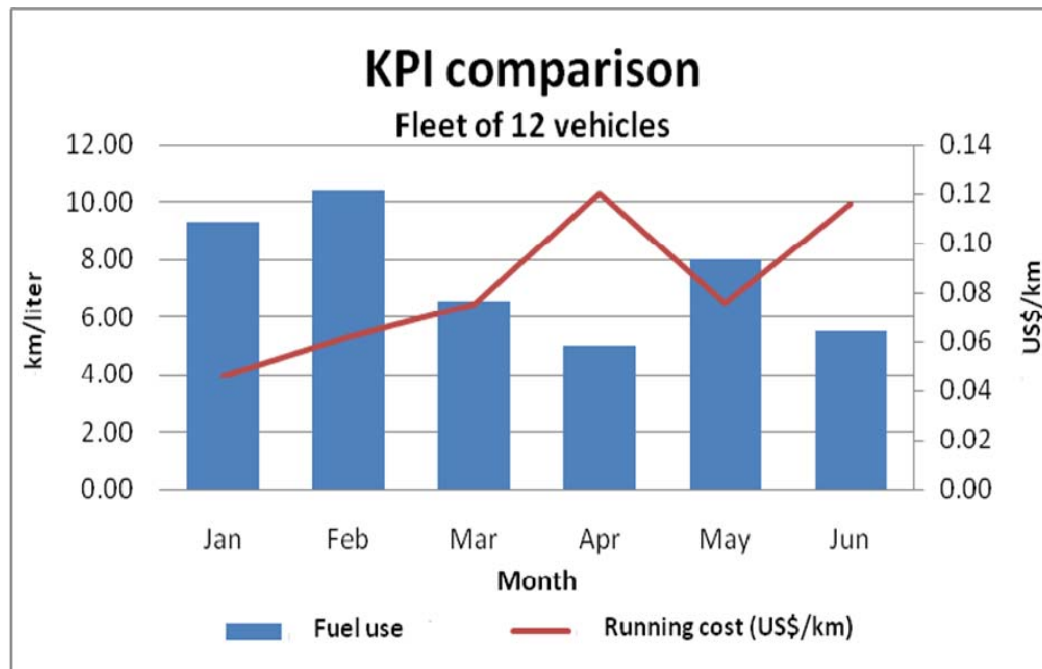
Fleet expansion is not necessarily the right solution for solving instances of low needs satisfaction. It is important to consider how other KPIs relate to needs satisfaction to inform the most appropriate action. As shown in the table below, these include vehicle use, availability, km traveled, and running costs.

**Table 2. How KPIs Accompanying Low Needs Satisfaction Inform Action**

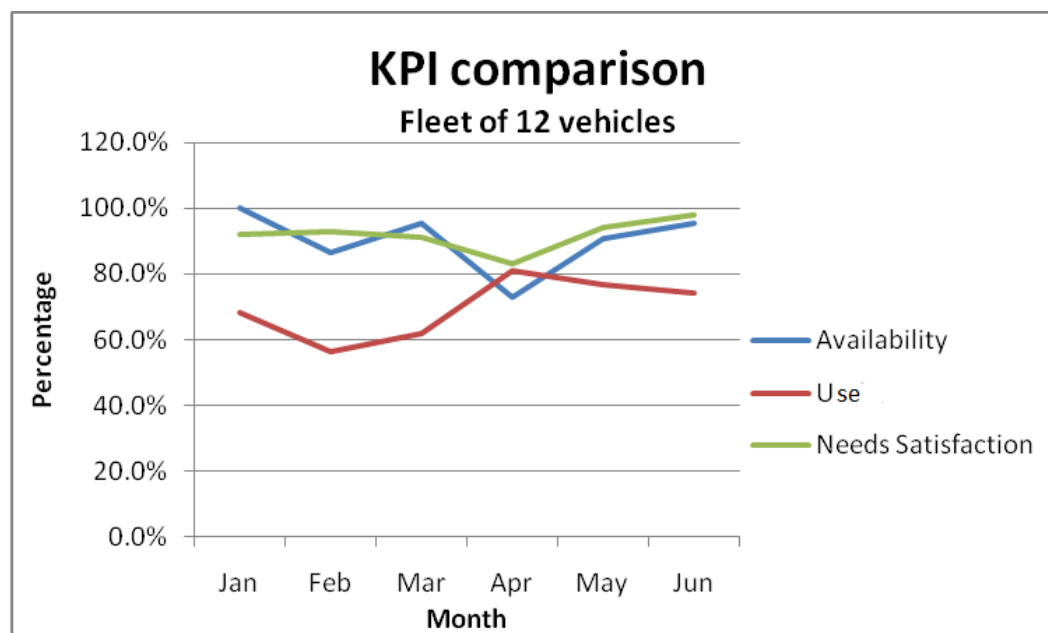
High	Low	Action to Take
<ul style="list-style-type: none"> <li>▪ Use</li> <li>▪ Availability</li> <li>▪ Km traveled</li> </ul>	<ul style="list-style-type: none"> <li>▪ Needs satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Expand the fleet</li> </ul>
<ul style="list-style-type: none"> <li>▪ Use</li> <li>▪ Km traveled</li> <li>▪ Running costs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Needs satisfaction</li> <li>▪ Availability</li> </ul>	<ul style="list-style-type: none"> <li>▪ Replace vehicles</li> </ul>

One of the best ways to examine KPI trends is to draw a graph that compares figures over time. For instance, the KPIs for fuel consumption and running cost are plotted against each other over a period of six months in Figure 16 below. The same is done for availability, use, and needs satisfaction in Figure 17.

**Figure 16. Fuel Consumption and Running Costs**



**Figure 17. Availability, Use and Needs Satisfaction**



In Figure 17, the needs satisfaction line shows that, with the exception of April, most planned work was carried out. Availability fluctuated, but was worst in April. Use figures are low, peaking in April, when fewer vehicles were available. From this, one can see that there is an availability problem that hasn't generally affected service delivery. If maintenance is brought up to standard and, assuming the demand curve stays flat, then availability will increase, use will decrease, and the fleet size could probably be reduced.

Graphs also highlight trends that may not be seen when looking at numbers in a table. This is often the case with fuel usage figures because graphs can better help recognize potential mechanical problems, recording errors, and fraud. It is important to avoiding grouping too much data together in a single graph (e.g., tracking many separate vehicles all at once) because trends that might exist could get lost in all of the detail.

The period transport report (see form in Appendix A) has space for comments on the analysis of what actually occurred against what was planned. All successes, failures, and changes help the learning process and planning. From this, training and safety methods may be systematically improved over time.

### **Communicating Results**

Everyone who fills out forms needs feedback on performance and on how information is used. Proof of good performance is particularly motivating. For example, publishing key graphs of individual vehicle performance will generate great interest amongst vehicle operators and can result in healthy competition to achieve the best results.

Not only vehicle operators and senior management need feedback. Improving transport performance involves the commitment of all users. Transport is expensive and its users need to be able to see how their use affects the delivery of the health services.

All management levels must view transport management as a key task, and spend time on improving performance and educating users. It is important to use every opportunity to raise awareness about transport issues and train everyone involved in the TMS. Every pick-up and delivery is an opportunity for communication. Managers should be aware of schedules and be prepared to raise issues with operators and users.

Memoranda that highlight best practices, provide details of problem areas, or announce changes are important ways to create a lasting record of key issues. Still, it should not be assumed that memoranda will reach all stakeholders, or that all stakeholders can easily understand them. Regular site visits and team meetings are essential.

## Case Studies

### I. Please Don't Give Me More Vehicles

It has been two years since the implementation of a TMS in the North Eastern Province of Guravia. The Transport Manager, Abubakar, had just received news that the Governor had offered a personal donation of three new vehicles. Abubakar called his District Transport Officer and was surprised to learn he had refused the donation. The Transport Officer explained that he said the following to the Governor—

*Thank you for the kind offer, Sir, but we don't need more vehicles here in Amole District. We have been tracking our Key Performance Indicators for two years and our fleet is now the right size. Each of our four-wheel drive cars and trucks travel about 3,000km each month and our motorcycles do about 1,000km. You can see from this that our fleet is neither worked too hard, nor has too much spare capacity. I have checked the vehicles' fuel consumption and running cost per kilometer, and they are in line with the targets we set out at the beginning of the year.*

*Our vehicle availability is very good—almost 95%—as we have agreements with local maintenance providers to ensure prompt servicing. We stock our own spare parts, so we don't have to wait for the local garage to import them. Our use is good as we have our vehicle schedules in place and everyone is trained in requesting vehicles. The Transport Officers at the health facilities do a great job of combining trips to reduce unnecessary journeys. Our needs satisfaction score is very good—almost 100%—meaning that almost every official request is satisfied. And, I know personally that all staff members and departments are very happy with the ability of our fleet to meet service delivery needs.*

*Our District Medical Stores fleet performs excellently with similar KPI scores to those I've just mentioned. At the same time, they maintain an average of 96% truck fill, either by weight or by volume. Their on-time delivery score is 99% and the only reasons it's not 100% is because of a recent crash. The damages score is not quite perfect because we have been having problems with the bad roads and a new loading team that is not careful enough with the stock.*

*So, as you can see, Sir, if you give us the new vehicles, our KPI score for utilization will drop below target, and so will the average kilometers traveled. At the moment, none of my existing vehicles need replacing, so I am going to politely refuse your kind offer.*

## 2. Only the Designated Driver of a Vehicle Should Drive It

In Kabui State in Northern Jurobia, Mr. Olusu, the District Transport Officer, was a dedicated individual who wanted to manage his fleet of 16 vehicles to the highest standard. He also wanted to overcome some of the problems he had managing them, so he asked permission to go on a Transport Management System course.

His boss agreed, and Mr. Olusu learned how to calculate and present KPIs. For three months, he collected data, made calculations, and drew graphs of his KPIs, and then analyzed the data and tried to solve the problems that arose. He displayed the KPIs and the graphs outside of his office for everyone, including the drivers, to see and take note of.

One day, the State Secretary made a visit to the health facility where Mr. Olusu worked. He passed by Mr. Olusu's office and noticed the graphs that were on display. He was very interested to know what they were about and Mr. Olusu was asked to explain them.

After Mr. Olusu had done this, the State Secretary asked why there was a big dip on one graph for use and availability. Mr. Olusu said that it was because the data for one vehicle showed zero use and availability for the month. He explained that a senior doctor at the facility had used it as his own personal vehicle for that month, so the logbook was not filled out and no data was collected.

The State Secretary now easily understood the impact on service delivery of one vehicle being misused. Upon returning to his office, he sent out a circular listing every vehicle's license plate registration number and the names of the designated drivers for each vehicle. With this, he made a firm statement that no one other than the designated driver was allowed to drive a vehicle.

Not only was the circular posted around Mr. Olusu's facility, but the State Secretary requested a short monthly report from Mr. Olusu on the transport KPIs from his district. No vehicles have since gone missing for any period of time or been driven by anyone other than the designated driver.

- How does this case study compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far? (to be considered in subsequent modules)

## Self Assessment

1. Name the seven transport KPIs.
2. Name the four distribution KPIs.
3. A vehicle has a loading capacity of 10,000 kg and you load the vehicle with 6,500 kg of health machinery. What is the truck fill by weight? (Show your calculation with your answer.)
4. In one month, there were 56 deliveries of vaccines to health facilities, eight deliveries did not arrive on-time. What was the on-time delivery percentage? (Show your calculation with your answer.)
5. Of the 56 deliveries, 6,050 vaccine units were delivered. There were 125 vaccine units returned due to damage. What was the percentage of damaged units? (Show your calculation with your answer.)
6. Briefly explain why, what, how, and when to monitor.
7. Discuss the process of communicating results.
8. From the data table below, calculate the following KPIs: distance traveled, fuel consumption, running cost per kilometer, availability, use, and needs satisfaction.





			KPI 1		KPI 2			KPI 3			KPI 4		KPI 5			KPI 6
Vehicle Registration	Start km	End km	km Traveled	Fuel Added (liters)	Fuel Consumption	Fuel price per Liter	Maintenance Cost	Running Cost USD/km	Working days in Month	Days in garage	Availability	Days used	Use	Number of trip requests for official work received	Number of requests for vehicles satisfied (no. of trips made)	Needs Satisfaction
AB 50 CDE	33498	35888		398		0.43	7500		22	2		16		103	95	
AB 51 CDE	26098	28745		441		0.43	0		22	0		19				
AB 52 CDE	45867	49347		580		0.43	5000		22	2		17				
AB 53 CDE	79837	84230		535		0.43	23450		22	4		18				
AB 54 CDE	26854	30295		369		0.43			22	0		15				
AB 55 CDE	10098	13622		339		0.43	11000		22	3		7				
AB 56 CDE	84570	90775		950		0.43	4500		22	1		13				
AB 57 CDE	34899	43399		1201		0.43			22	0		17				
AB 58 CDE	23490	28790		880		0.43	3500		22	1		16				
AB 59 CDE	69749	72629		576		0.43	13000		22	3		15				
AB 60 CDE	48209	50987		347		0.43	8000		22	2		19				
AB 61 CDE	95549	96482		170		0.43	4800		22	1		17				



## Self Assessment Answers

1. Name the seven transport KPIs.

- Kilometers traveled
- Fuel consumption
- Running cost per km
- Availability
- Use
- Needs satisfaction
- Safety

2. Name the four distribution KPIs.

- Truck fill
- On-time delivery
- Damages
- Nonconformity

3. A vehicle has a loading capacity of 10,000 kg and you load the vehicle with 6,500 kg of health machinery. What is the truck fill by weight? (Show your calculation with your answer.)

- $(\text{actual load} \div \text{maximum load possible}) \times 100 = \text{truck fill}$
- $(6500 \div 10,000) \times 100 = 65\%$

4. In one month, there were 56 deliveries of vaccines to health facilities, eight deliveries did not arrive on-time. What was the on-time delivery percentage? (Show your calculation with your answer.)

- $(\text{total number of loads delivered on-time} \div \text{total number of loads delivered}) \times 100 = \text{on-time delivery (\%)}$
- $(48 \div 56) \times 100 = 85.71\%$

5. Of the 56 deliveries, 6,050 vaccine units were delivered. There were 125 vaccine units returned due to damage. What was the percentage of damaged units? (Show your calculation with your answer.)

- $(\text{units of stock damaged during transport or delivery} \div \text{total units of stock delivered}) \times 100 = \text{damages (\%)}$
- $(125 \div 6,050) \times 100 = 2.07\%$

6. Briefly explain why, what, how, and when to monitor.

Four questions are useful to consider when deciding how to monitor—

Why? What are you trying to determine?

What? What needs to be monitored to best understand what you are trying to determine?

How? It is best to make use of existing information whenever possible. If new information is needed, it should be kept simple, and it should be clear how and why the information will be used.

When? This is best informed by answering the previous questions.

7. Discuss the importance of communicating results.

*Transport is expensive, and its users need to be able to see how their use affects the delivery of the health services and how their commitment is critical to improving overall performance. Thus, it is important to take advantage of every opportunity to raise awareness about transport issues and train everyone involved in a TMS. In particular, everyone who fills out forms needs feedback on performance and on how information is used. Proof of good performance is particularly motivating (e.g., publishing key graphs of individual vehicle performance to generate great interest amongst vehicle operators).*

*Managers should be aware of schedules and be prepared to raise issues with operators and users. Memoranda that highlight best practices, provide details of problem areas, or announce changes are important ways to create a lasting record of key issues. Still, it should not be assumed that memoranda will reach all stakeholders, or that all stakeholders can easily understand them. Regular site visits and team meetings are essential.*

*Senior managers need feedback as well.*

- From the data table below, calculate the following KPIs: distance traveled, fuel consumption, running cost per kilometer, availability, use, and needs satisfaction.
- The following calculations should be used (see table on next page for answers):
- $\text{current odometer reading} - \text{prior odometer reading} = \text{distance traveled}$
- $\text{total distance traveled} \div \text{total fuel used} = \text{fuel consumption}$
- $([\text{quantity of fuel used} \times \text{fuel price}] + [\text{maintenance cost} + \text{cost of tires}]) \div (\text{total kilometers traveled}) = \text{running cost/km}$

- $( [\text{total days in the period} - \text{total days in the garage}] \div [\text{total days in the period}] ) \times 100 = \text{availability (\%)}$
- $(\text{total days used} \div \text{total days available}) \times 100 = \text{use (\%)}$
- $(\text{number of trips made} \div \text{number of trip requests for official work received}) \times 100 = \text{needs satisfaction (\%)}$



			KPI 1		KPI 2			KPI 3			KPI 4		KPI 5			KPI 6
Vehicle Registration	Start km	End km	km Traveled	Fuel Added (liters)	Fuel Consumption	Fuel price per Liter	Maintenance Cost	Running Cost USD/km	Working days in Month	Days in garage	Availability	Days used	Use	Number of trip requests for official work received	Number of requests for vehicles satisfied (no. of trips made)	Needs Satisfaction
AB 50 CDE	33498	35888	2390	398	6.0	0.43	7500	3.20	22	2	91%	16	80%	103	95	92%
AB 51 CDE	26098	28745	2647	441	6.0	0.43	0	0.07	22	0	100%	19	86%			
AB 52 CDE	45867	49347	3480	580	6.0	0.43	5000	1.50	22	2	91%	17	85%			
AB 53 CDE	79837	84230	4393	535	8.2	0.43	23450	5.39	22	4	82%	18	100%			
AB 54 CDE	26854	30295	3441	369	9.3	0.43	0	0.04	22	0	100%	15	68%			
AB 55 CDE	10098	13622	3524	339	10.4	0.43	11000	3.16	22	3	86%	7	37%			
AB 56 CDE	84570	90775	6205	950	6.5	0.43	4500	0.79	22	1	95%	13	62%			
AB 57 CDE	34899	43399	8500	1201	7.1	0.43	0	0.06	22	0	100%	17	77%			
AB 58 CDE	23490	28790	5300	880	6.0	0.43	3500	0.73	22	1	95%	16	76%			
AB 59 CDE	69749	72629	2880	576	5.0	0.43	13000	4.59	22	3	86%	15	79%			
AB 60 CDE	48209	50987	2778	347	8.0	0.43	8000	2.93	22	2	91%	19	95%			
AB 61 CDE	95549	96482	933	170	5.5	0.43	4800	5.22	22	1	95%	17	81%			





# Module 7. Situational Analysis

## Introduction

By the end of this module you will be able to:

- describe the purpose of a situational analysis;
- advocate the need for a situational analysis to senior managers;
- plan and implement a situational analysis; and
- analyze data from and report on a situational analysis.

## The Purpose of a Situational Analysis

Situational analysis is not itself part of a TMS, and therefore is not a component of routine monitoring and evaluation. Situational analysis is typically applied when a holistic look at the total transport system is required, for example for strategic planning purposes. It is a proven, thorough, powerful, and structured way of looking at any management issue to clearly determine relevant elements, opportunities, and problems. The situational analysis is essential for putting the best TMS in place. Before implementing any reforms to a transport system, it is vital to ask some very basic questions—

- What type of transport is available?
- What is it used for?
- Who uses it, where, how, and why?
- What improvements are needed?

## Planning for a Situational Analysis

### Approach

A situational analysis requires the full cooperation of all people involved in managing and operating transport. Terms of reference (TOR) should thus be developed to not only reflect the objectives and tasks (including timeframes) of the team that will implement the analysis, but also a detailed list of people who will be consulted. These must be agreed to by all parties involved and signed off by senior management.

The participation of managers as part of an information collection team is often valuable because it helps them understand critical issues more than they would if they simply received a report of the final results.

Choosing an external person to lead the collection and analysis effort is a way to better ensure that bias does not influence the results of the situational analysis. Someone who is not linked to an

organization is unlikely to feel that their job could be threatened if a situational analysis reveals inefficient, negligent, or even corrupt practice. At the same time, though, an external person often experiences greater challenges in building trust amongst team members and respondents, and may ultimately have greater challenges in bringing about discussion of important issues that will lead to good conclusions.

## Method

Analyzing the management and operation of a small, centralized fleet can take a matter of days. Analysis of a national program can last several weeks, with inventory of the fleet (see step 3 below) taking much of the team's time. But, fleet size and location are not the only factors to consider. Much depends on whether reliable information already exists at the district level.

Although information can usually be submitted by the district level, it is useful to visit a number of districts to see, among other things, the vehicles, their condition, and whether they have log books and working odometers. A request can then be made of the remaining districts to send information using the same forms used in the initial districts.

In cases where it is believed that district-level managers are unlikely to provide accurate information, a member of the team conducting the analysis should visit each location, making visual checks on every vehicle and collecting information on forms by interviewing those who use them (i.e., drivers, administrators, and health staff).

### Box 20. What a Situational Analysis Requires

#### Commitment

A situational analysis should be fully understood and supported by the entire team because the results must be owned by the department or organization as a whole.

#### Access

Transparency is vital. If information is hidden, it may affect conclusions and lead to inappropriate recommendations.

#### Time

Project leaders will be required to coordinate and manage the process, as well as any working groups that are formed. Realistic deadlines must be set and monitored. Managers must provide sufficient time to undertake this work, and it is important to remember that team members also have their day-to-day workloads to manage at the same time as they are participating in the situational analysis.

## The Ten Steps of a Situational Analysis

It is often surprising just how little regional- and national-level teams know about the transport situation in districts, including the state of the fleet and who is responsible for decision making. A situational analysis is designed to clarify this through ten steps—

1. Summarize background information.
2. Summarize the administrative structure.

3. Describe the fleet.
4. Determine the ideal fleet and compare it with what exists.
5. Summarize how policy affects transport.
6. Summarize management systems.
7. Summarize financial procedures.
8. Assess vehicle maintenance, repair, purchase, and disposal procedures.
9. Summarize human resource components.
10. Present the situational analysis report.

## **Step 1: Background Information**

Study maps, and make notes on population distribution and the transport operating environment, including—

- The location of health facilities and the size of catchment populations.
- The types of terrain and how they are affected seasonally.
- The road network and its condition.
- How roads and bridges are affected seasonally.
- Security considerations.
- Major rivers or lakes that require boats for transport.

Your own agency or partners (including international organizations and NGOs) may already have questionnaires and other tools for conducting generic situational analyses. The Transport Assessment Tool found in Annex D provides a good basis for conducting a situational analysis. Having this background information is important because it provides an all-important starting point for developing resources that meet the specific needs of any situational analysis.

The information gathered during this first step will be important for all of the next steps, such as considering:

- which vehicles are distributed to which locations, and how appropriate this is (e.g., are the best and newest 4 x 4 vehicles kept in the capital city, where tarmac roads make the use of these powerful vehicles unnecessary);
- how service and repair is carried out, taking into account the distance between health facilities and the nearest major town with reliable garage facilities; and
- policy issues that are affected by security problems.

## **Step 2: Administrative Structure**

National-level analysis with a Ministry of Health (or similar authority) requires dealing with a complex structure. Thus, the main divisions within the Ministry (e.g., central, regional and district), and their functions and responsibilities should be noted.

The health service delivery structure should then be considered. If it is based on a provincial department of health structure, how much autonomy does each provincial department have in terms of decision making and budget control, and how does this affect transport operations and policy?

For example, allocation of capital costs might be made by the Ministry at the central level, meaning the province cannot buy new vehicles, but it can allocate the amount spent on running and repairing vehicles from the overall provincial health budget allocation. Who makes these decisions—a head of finance, a head of administration, or a health service management committee?

After considering health service delivery, it is useful to look at district services, including—

- How many districts are there in each province?
- How many health facilities are there in each district (which should have been determined in step 1)?
- What is the staffing structure at the district level?
- Who takes responsibility for vehicle allocation?
- Who takes responsibility for vehicle management? Does the same team take responsibility for medical stores and the distribution of drugs and vaccines?
- Who recruits and manages drivers?
- What responsibilities do drivers have?
- How are these responsibilities communicated and managed?

Finally, it is essential to consider issues related to maintaining and repairing vehicles:

- Is this work undertaken in Ministry garages, outsourced to the private sector, or is there a mix of systems?
- Who makes decisions about this, and who monitors the quality and cost effectiveness of the work?
- Who takes responsibility for training?

### **Step 3: The Fleet**

As noted earlier, developing an accurate description of all vehicles in a fleet and their condition can take a lot of time if the work involves a large number of vehicles, spread out over many locations, and with few central records to consult. Even well-kept central records are often out of date.

To establish or update a fleet inventory, it is necessary to compile a list of vehicles by category (i.e., truck, sedan, motorcycle, bicycle, etc.) and by location (using the information from Step 2). A standard form is shown in Figure 18, but it is often worthwhile adapting a new form when implementing an updated or improved TMS.

**Figure 18. Standard Vehicle Inventory Form**

VEHICLE INVENTORY					
MAIN LOCATION		DATE			

VEHICLE	1	2	3	4	5
REGISTRATION					
MAKE					
MODEL/TYPE					
ENGINE SIZE					
CONDITION 1					
VEHICLE BASE 2					
ALLOCATION 3					
MAJOR USE 4					
ENGINE NO.					
CHASSIS NO.					
TOTAL KILOMETERS 5					
TOTAL KM/MONTH 6					
AVERAGE DAYS USED/MONTH 7					
MAIN OPERATOR 8					
YEAR					
COLOR					

**NOTES FOR FILLING IN THE VEHICLE INVENTORY FORM 1:**

- 1 = EXCELLENT (NO WORK REQUIRED)
- 2 = GOOD (SOME WORK REQUIRED WITHIN 6 MONTHS)
- 3 = FAIR (NEEDS MAJOR WORK)
- 4 = POOR (UNRELIABLE, CANNOT BE USED FOR LONG DISTANCES)
- 5 = OFF-ROAD AND AWAITING REPAIR
- 6 = BEYOND ECONOMIC REPAIR

2	PHYSICAL LOCATION OF THE VEHICLE
3	LOCATION FROM WHICH THE VEHICLE WAS ALLOCATED
4	THE MAJOR PURPOSE FOR WHICH THE VEHICLE ALLOCATED (REFER TO CODE IF ONE EXISTS)
5	CURRENT ODOMETER READING. INDICATE "B" IF BROKEN
6	ESTIMATE OF THE AVERAGE DISTANCE (KM) TRAVELED BY THE VEHICLE IN ONE MONTH
7	ESTIMATE OF THE AVERAGE NUMBER OF DAYS THE VEHICLE IS USED IN ONE MONTH
8	JOB TYPE OF PERSON WHO NORMALLY DRIVES THE VEHICLE (REFER TO CODE IF ONE EXISTS)
9	LIST OF SAFETY EQUIPMENT ALLOCATED TO THE VEHICLE (REFER TO CODE IF ONE EXISTS)

As suggested earlier, it is important to decide whether these forms should be sent to and returned by district officers, or whether the situational analysis team will carry out inventories through field visits. In either case, the completed forms should be aggregated, with a copy of vehicle-specific information included in the vehicle file. A system should be established to regularly update information that changes over time (e.g., condition and location).

## **Step 4: Calculating the Ideal Fleet**

Steps 1-3 provide an up-to-date inventory of vehicles, as well as a picture of how they are allocated to health facilities (and if the allocation is appropriate).

For many health services in developing countries, calculating the ideal fleet size is based on an assumption that every district health facility should have the same fleet make-up. This unfortunately does not take into account differences in the working requirements and working conditions of different facilities. The ideal fleet should not only be determined based on these factors, but vehicle allocation should also be adapted as conditions change.

To calculate the ideal fleet, it is necessary to know for each independent unit within an organization (i.e., head office, district hospital, district health center...):

- what tasks require transport (including delivery of health services, routine monitoring and supervision, transport of medicines and medical supplies, visits to head office, and administrative tasks);
- what types of vehicles are required to undertake these jobs;
- the distances to be traveled and corresponding operating conditions; and
- service delivery priorities.

At this stage of the situational analysis, transport requirements are calculated in vehicle days per month (and not the number of vehicles). Each manager in the facility will provide information on activities that require transport, the number of people who use transport, the number of transport required per month, and the type of vehicle required to undertake a job. Table 2 shows an example of a form filled out to reflect this information.

**Table 3. Basic Transport Needs**

Activity (define by user)	Number of people	Days per month	Type of vehicle required				
			Standard 4 wheel	Large 4 wheel	Standard high clearance 4 wheel	Large high clearance 4 wheel	Motor cycle
A	2	16	2		12		2
B	5	15				15	
C	2	10	3		3		4
D	12	5		5			
E	1-4	4	1		1		2
F	1	12	8		2		2
G	1	20	4		3		13
Totals		82	18	5	21	15	23

This exercise needs to be completed through a discussion with managers (and not a questionnaire) so they can better think about what type of transport is really needed to do the job, rather than what is used now to do it.

For instance, the office administrator may require transport every working day to take and collect mail. They may use the pickup truck to do this, yet the job could be done just as well if a motorcycle were available.

Avoid letting the idea persist that, “We need a vehicle sitting outside just in case!” This is often the position of health service providers who are not used to working with a well-managed fleet. The only vehicle that is needed ‘just in case’ is an emergency ambulance, where appropriate.

The next part of this step is calculating the number of vehicles required (see Box 21 and Table 3 below). This is done by dividing the number of vehicle days for each vehicle type by the number of working days per month (usually 20). Increase this number by 25% to allow for ‘vehicle down-time’ (e.g., maintenance and unexpected use).

As with the example in Box 21, it is normal to have a result that expresses a fractional number of vehicles. In addition to normal rounding practices, look at all the figures to ensure that the result realistically reflects need (e.g., if a need for 2.7 pickup trucks and 1.2 off-road vehicles is calculated, would three pick-up trucks and one off-road vehicle truly be sufficient?). A decision of this type may need to be made through discussion with a unit’s senior management team. Note that the final row of Table 3 shows an example of rounding.

### Box 21. Calculating the Actual Number of Vehicles Needed

#### Formula

- (a) vehicle days required per vehicle type ÷ number working days/month = subtotal
- (b) (subtotal ÷ 100) x 25 = safety factor
- (c) subtotal + safety factor = number of vehicles needed

#### Example

- (a) 19 vehicle days per type ÷ 20 working days in month = 0.95
- (b) (0.95 ÷ 100) x 25 = 0.24
- (c) 0.95 + 0.24 = 1.19 vehicles

**Table 4. Actual Fleet Requirements**

Activity	Standard 4 wheel	Large 4 wheel	Standard high clearance 4 wheel	Large high clearance 4 wheel	Motorcycle
Totals from table	18	5	21	15	23
Increased by Safety Factor (25%)	22.5	6.25	26.25	18.75	28.75
Divided by 20 (working days in month)	1.125	0.3125	1.3125	0.9375	1.4375
Rounded into whole number of vehicles	1	1	2	1	2

### Effectively Managing What You Have

At this point in the situational analysis, a number of important pieces of information have been collected: an overview of the existing fleet, where the vehicles are based, their condition, and an estimate of ideal transport requirements. The final part of this step is comparing actual requirements to the existing fleet. The result will obviously indicate that there are either too many, too few, or the right number of vehicles in the fleet. There are a number of considerations when interpreting results of this type—

- Too many vehicles:
  - Are many of them old; do they require repair or are they beyond economic repair? Remove irreparable vehicles from the comparison.
  - If there are too many vehicles in one location, does another location have too little or the wrong type of vehicles? If so, consider reallocation.
  - As noted in Module 4, having too many vehicles may indicate that some are used as personal rather than pool vehicles, which reduces the effectiveness of the fleet.



- Too few vehicles :
  - This does not automatically indicate a need for new vehicles. It is necessary to first calculate cost and then compare added benefits of new vehicles compared to cost. Are there ways of reducing demand on existing transport through use of public transport, occasional hire or loan of vehicles?
  - As noted earlier in this course, requesting expansion of a fleet requires making a clear business case to senior management. Complications arise when capital costs are out of a department or ministry's control, or if the fleet depends on donated vehicles from external sources.
- The ideal fleet :
  - As remarked in Module 3, an 'ideal fleet' is worth striving for, but it is rare to achieve. Nonetheless, defining an ideal fleet makes it easier to effectively manage existing resources.

## Step 5: Current Policy Guidelines Affecting Transport

Large, well-established organizations usually have transport policies in place. Important questions to answer about these policies include—

- Are they in written form?
- Are they regularly reviewed and revised?
- Are they understood by everybody?
- Are they followed and enforced?
- Will they need to be modified (see step 6 below)? If so, are they issued centrally or provincially, and can they be modified (e.g., a provincial department of health may be tied to central-policy)?

Where no transport policy exists, there is an opportunity to develop one that is strong enough for senior managers to agree upon. Module 8 of this course is useful for policy preparation.

It is also important to consider other policies that relate to or affect transport. For example, human resources policy may define the right to use departmental vehicles as part of the employment terms for senior staff. Finance policy may specify budgetary issues that impact on levels of authority, responsibility and sign-off procedures. These policies also need to be noted, and relevant sections copied and attached as an appendix to the transport situational analysis report.

## Step 6: Management Systems

The list of procedures below represents the foundation of good transport management, and provides information used to calculate the Key Performance Indicators (covered in Module 6). It is important to refer back to step 5 and verify whether policies exist covering some or all of these procedures and to note how each is managed, including any differences between locations. Consider the following—

- Health facility level
  - Daily vehicle use

- Who is allowed to drive the vehicle?
- Who signs off on permission to use a vehicle?
- What records are kept of trips?
- What records are kept of fuel consumption?
- Are there log books in every vehicle and are they routinely used?
- Is there a regular check of odometer readings?
- Who sees this information and checks fuel costs against trips undertaken?
- Who is responsible for planning the use of a vehicle?
- Condition of vehicle
- Who checks the vehicle condition? Is there a written procedure for this? Is this process monitored?
- How are decisions about routine maintenance made?
- How are decisions made about maintenance and repair expenditure?
- Is there a formal defect reporting system in place?
- Vehicle records:
- Are individual records kept for each vehicle? Where? Who records and collates this information?
- Is there a form for reporting vehicle damage? Who uses this information and how?
- If information is regularly reviewed, who reviews it and how often (e.g., at monthly management meetings)?
- What types of decisions are made as a result of reporting and who makes them?
- Central level
  - Guidelines and procedures.
  - Purchase of new vehicles.
  - Disposal of old vehicles.
  - Allocation of new vehicles to health facilities.
  - Expenditure on repair of vehicles.
  - Monitoring vehicle use, checks, and repairs locally.

## **Step 7: Financial Procedures**

### **At the Central Level**

In addition to the MOH, which ministries are involved in budget allocation for transport expenditure? Describe how these responsibilities relate to MOH activities (e.g., does the Ministry of Finance have responsibility for allocating financing for capital expenditures on new vehicle purchases, and does the Ministry of Transport officially own the vehicles, including taking responsibility for maintenance, repair and disposal?).

### **At the Provincial District Levels**

- Describe the budget allocation process from the central level MOH to the province and district levels. Is transport a specific budget line item or is it incorporated into a general facilities budget?
- Do health districts and facilities make a specific expenditure report on transport costs to provinces?
- Are specific allocations for vehicles and transport provided to health facilities, or do they receive a lump sum, with facility managers making the decision on how money is spent?

## **Step 8: Vehicle Maintenance, Repair, Purchase, and Disposal**

Some of the procedures for maintenance, repair and disposal of vehicles may be clearly described in relevant government documents (e.g., tendering procedures, and the sale and disposal of government property). Others may not appear in policies and operational guidelines, or are not understood or consistently implemented.

### **Maintenance and Repair of Vehicles**

Describe the procedures outlined in policy and operational guidelines, and describe differences in current practice between various locations—

- Are vehicles routinely maintained? If so, is this work undertaken by Ministry of Health staff, by staff from another Ministry, outsourced, or through a combination of these?
- How are vehicles selected for maintenance?
- Who undertakes the work? Is it outsourced?
- What tendering procedures are used, and who decides who signs and manages the contract? Does the lowest tender always win?
- Who is in charge of quality assurance?
- How is work paid for?
- What advantages and problems are there in the system being used?

The only difference between using the above checklist for maintenance issues and repair issues is that selection criteria must be understood for all repairs. As discussed earlier in this guide, the cost of major repair for old vehicles or vehicles that have been badly damaged in road crashes is often more than their value (also see ‘vehicle disposal’ below).

Whether discussing maintenance or repair, it is essential to identify the people who are responsible for decision making and quality assurance.

## **Vehicle Disposal**

If the estimated cost of repair is greater than the value of the vehicle, it should be disposed of or broken up for parts. Government procedures for disposal (and purchase) of property are usually complex, often difficult to activate, and vary from government to government. It is important to understand how such procedures work, who is able to make decisions, and whether the procedures are a barrier to implementing a system that allows for the sale and purchase of vehicles at the appropriate economic point in the vehicle's life. These issues were covered in Module 6.

## **Step 9: Health and Safety, and Human Resources**

Relevant sections of the job descriptions for drivers, administrative staff who manage drivers or schedule transport at the facility level, and mechanics who operate at different levels should be included in the situational analysis. It is useful to comment specifically on:

- how responsibilities are undertaken, and how consistent this is across locations;
- safety procedures, particularly with respect to the use of motorcycles, helmets, seat belts, and mobile phones while driving;
- policies and practices relating to the use of alcohol; and
- the training of driver and riders.

## **Step 10: Writing and Presenting your Situational Analysis**

Situational analyses are generally presented as written reports, submitted first in draft to senior managers for comment, and then followed by departmental presentations. The presentation should include a review of analyzed facts and how they led to recommendations for improvement. Any recommendations should be made along with details on the resources necessary to achieve them, as well as structural and organizational constraints that need to be overcome as part of TMS implementation.

## **Case Study**

### **Conducting a Situational Analysis is Not Easy**

In the province of Larisa, Mrs. Chemwe, the administrative officer at the Ministry of Health, was getting worried about transport. She saw that transport costs weren't properly monitored, and that road crashes were damaging vehicles and risking lives. Even though there were many vehicles in her province, it seemed like there weren't enough each time a vehicle was requested for outreach, or monitoring and evaluation.

Mrs. Chemwe had a basic understanding of transport management from her previous job. She knew that the first step was to conduct a situational analysis to collect information to make a decision on the best way forward. She contacted her colleagues at the Ministry and proposed to carry out a situational analysis. Everyone she contacted agreed to collaborate and provide the necessary information. She analyzed the external context and the structure of the Ministry of Health at the provincial level. Then she started to try and understand the current vehicle fleet.

Mrs. Chemwe really struggled to get information about how many vehicles the Ministry owned, what types of vehicles they were, how old they were, and what departments they were allocated to. When she did finally get some basic information from her district offices, it was impossible for her to understand what condition the vehicles were in. She went to the offices to try and find the vehicles, but was told that they were out doing outreach work and could not be examined.

She started looking for a transport policy. Some offices didn't have anything, while others had copies of policies provided by the Ministry of Transport that looked like they hadn't been consulted for many years. More importantly, no one she spoke to knew about any transport policy. She looked for some kind of transport management system, but didn't find anything—no logbooks, no maintenance records, and no planning or scheduling sheets.

One thing that Mrs. Chemwe did start to appreciate was how much easier her task became when she was working with the local Ministry of Health staff in their district offices. Once she explained to them the purpose of her visit, they could understand the need to look at the current transport situation.

Finally, Mrs. Chemwe started investigating how much transport was costing so she'd know how much it might cost to improve the situation. She found it very difficult to find any information about costs. The information that did exist was not separated by individual vehicles, and didn't differentiate between maintenance and fuel costs.

Three months after starting her situational analysis, Mrs. Chemwe was very tired, but she finally had the information she needed to develop a plan to introduce a functional transport management system. She then called together the senior managers to discuss her findings and present a proposal on how to improve the situation.

- How does this case study compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far? (to be considered in subsequent modules)



## **Self Assessment**

1. What is a situational analysis?
2. What is the purpose of a situational analysis?
3. What are the 10 key steps to follow when completing a situational analysis?
4. A situational analysis requires three key components: commitment, access, and time. Briefly explain each.
5. When implementing a situational analysis, an external consultant or internal manager can be used. Explain the advantages or disadvantages of choosing either kind of person.

## Self Assessment Answers

1. What is a situational analysis?
  - A situational analysis is a structured way of looking at a management issue to clearly define its elements, as well as opportunities and problems.
2. What is the purpose of a situational analysis?
  - A situational analysis provides an understanding of the strengths and weaknesses of an operation, helps identify priorities for change, and helps inform discussion of these problems with senior managers, whose support for recommendations is critical.
3. What are the 10 key steps to follow when completing a situational analysis?
  - Summarize background information.
  - Summarize the administrative structure.
  - Describe the fleet.
  - Determine the ideal fleet and compare it with what exists.
  - Summarize how policy affects transport.
  - Summarize management systems.
  - Summarize financial procedures.
  - Assess vehicle maintenance, repair, purchase, and disposal procedures.
  - Summarize human resource components.
  - Present the situational analysis report.
4. A situational analysis requires three key components: commitment, access, and time. Briefly explain each.
  - Commitment: A situational analysis should be fully understood and supported by the entire team because the results must be owned by the department or organization as a whole.
  - Access: Transparency is vital. If information is hidden, it may affect conclusions and lead to inappropriate recommendations.
  - Time: Project leaders will be required to coordinate and manage the process, as well as any working groups that are formed. Realistic deadlines must be set and monitored. Managers must provide sufficient time to undertake this work, and it is important to remember that team members also have their day-to-day workloads to manage at the same time as they are participating in the situational analysis.



5. When implementing a situational analysis, an external consultant or internal manager can be used. Explain the advantages or disadvantages of choosing either kind of person.
- Choosing an external person to lead the collection and analysis effort is a way to better ensure that bias does not influence the results of the situational analysis. Someone who is not linked to an organization is unlikely to feel that their job could be threatened if a situational analysis reveals inefficient, negligent, or even corrupt practice. At the same time, though, an internal person usually experiences fewer challenges in building trust amongst team members and respondents, and may ultimately have an easier time in bringing about discussion of important issues that will lead to good conclusions. Moreover, the participation of internal managers as part of an information collection team is often valuable because it helps them understand critical issues more than they would if they simply received a report of final results.



# Module 8. Is Outsourcing an Option?

## Introduction

After completing this module, you will be able to:

- define outsourcing;
- describe the reasons an organization would consider outsourcing supply chain activities;
- recognize the steps for determining whether outsourcing is a viable option to address an organization's identified needs; and
- summarize key principles related to contracting and contract management.

## What is Outsourcing?

The term *outsourcing* refers to a situation in which an organization contracts with an external service provider to carry out business functions that were previously performed in-house. This practice has become common in industrialized countries because it is often less expensive and more efficient for companies to use outside expertise for non-core activities, like computer maintenance or payroll disbursement. Outsourcing is also gaining greater attention in developing countries, including as a potential solution for improving transport and other key aspects of health commodity logistics.

At present, the number of well-documented examples of outsourcing supply chain activities in developing countries is fairly small. Yet, now more than ever, outsourcing is an important opportunity for public health organizations to explore. Medical needs and commodity demands are growing rapidly in emerging economies, and health programs whose personnel are already confronted with numerous competing priorities must find a way to effectively address expanding logistics requirements.

Adding to the challenge, resource constraints often limit the range of internal changes that Ministries of Health and other program implementers can make to increase the efficiency and cost-effectiveness of their supply chains, and ultimately improve service. For example, an MOH planning to expand its vaccination program may lack sufficient financing to purchase additional cold chain-equipped vehicles. Or, an NGO-run malaria program may not have the flexibility to re-purpose delivery personnel and vehicles that are under-utilized during non-endemic seasons, when commodity needs are significantly lower. The question of whether outsourcing is a viable option to resolve issues like these depends on many factors that will be reviewed in this module.

## When Should Outsourcing be Considered?

It is essential to recognize that outsourcing is not an easy solution that will end all logistics concerns and, most certainly, will not relieve an organization of the responsibility for managing its supply chain or transportation management system. A decision to outsource comes from determining when

it is more advantageous for an organization to shift from carrying out specific transportation tasks on its own to managing contracts for implementation of those tasks by an outside party. To make outsourcing successful, an organization must maintain constant involvement in transportation management and possess (or develop) special skills, particularly in contract management. A key initial issue is whether outsourcing options are available and how reliable they are. Private sector transport companies that have the capacity to carry out required logistics work do not necessarily exist in all countries.

In transport, outsourcing is not an *all-or-nothing* option. A Ministry of Health that delivers products to service delivery points may still decide to outsource only some aspects of transport management, such as delivery or repair and maintenance (see Module 3). The outsourcing process described below is applicable whether contracting for all transport management functions together, or just specific components.

- When it is an option, there are many reasons why an organization would consider outsourcing. The most common are—
- Reducing costs.
- Improving the operating performance, quality, timeliness, and productivity of a TMS.
- Improving service levels at health facilities; for example, by ensuring more reliable product delivery (which translates into greater product availability) and/or allowing the host organization to focus greater attention its core expertise in implementing service delivery programs.
- Increasing flexibility to deal with ever-changing business conditions.
- Compensating for a lack of internal expertise, capacity, or technological resources; or benefiting from unique advantages outside providers may have in these areas.

Most organizations undertake a two-phase process of *deliberation* and *cost-benefit analysis* to decide whether outsourcing can effectively bring about improvements like those listed above.

## Deliberation

Through deliberation, a group of internal stakeholders who understand the existing TMS and its performance identify strategic and operational needs, and determine the feasibility of meeting such needs through outsourcing.

To identify needs, organizations must first have the ability to measure existing performance and compare it to an accepted standard. Module 6 of this guide reviews how to conduct situational analyses. In addition, the USAID | DELIVER PROJECT has published a list of suggested performance-based indicators (also known as metrics) for logistics systems in *A Guide to Key Performance Indicators for Public Health Managers* (Aronovich et al. 2010), which is available on the project's website (<http://deliver.jsi.com>). Evaluations using performance-based indicators, including a skills assessment of staff members to understand a program's knowledge base and technical capacity, can clearly define what areas of a TMS require improvement.

After identifying desired improvements but before ascertaining if they can be satisfactorily achieved through available private sector alternatives, it is necessary to comprehend the policies governing service contracting with outside providers. Especially during an era in which greater attention is being paid to transparency and rational business practices in the developing world, contracting

policies for government entities and guidelines for international organizations may often be complex or restrictive, and require clear understanding by an organization wishing to outsource.

## Cost-benefit Analysis

Once necessary supply chain improvements have been identified and confirmation that contracting is a feasible policy option has been obtained, an organization must then assess the related financial implications of outsourcing. Conducting a cost-benefit analysis enables an organization to compare itself with outside service providers in terms of expected expenses and results.

Cost-benefit analyses are usually based upon a mathematical equation that adds together all relevant costs of a decision and compares them against expected benefits, such as cost savings and increased quality. The most common equation for determining the potential cost effect (i.e., savings or increase) from outsourcing is:

$$\text{Potential cost effect} = \text{Cost to outsource} - (\text{Current internal costs} + \text{Internal costs to achieve desired improvements})$$

Table 5 shows the general range of cost items that make up the total value of each variable in the above equation.

**Table 5. Transportation Management Cost Items**

Costs to Outsource	Current Internal Costs*	Internal Costs to Achieve Desired Improvements
<ul style="list-style-type: none"> <li>• Tendering</li> <li>• Contract management</li> <li>• Services</li> <li>• Contingency for poor performance</li> <li>• Capital</li> </ul> <p><u>Potential others</u></p> <ul style="list-style-type: none"> <li>• Infrastructure (i.e., furnishing vehicles or storage facilities to the service provider)</li> <li>• Severance pay and other costs related to staff lay-offs</li> </ul>	<ul style="list-style-type: none"> <li>• Employee and administrative</li> <li>• Equipment, including maintenance</li> <li>• Buildings, including running costs</li> <li>• Fuel</li> <li>• Per diem and lodging for drivers and other traveling personnel</li> </ul> <p><u>Potential others</u></p> <ul style="list-style-type: none"> <li>• Inventory (when outsourcing inventory management)</li> </ul>	<ul style="list-style-type: none"> <li>• Benchmarking</li> <li>• Improving personnel skills</li> <li>• Improving infrastructure</li> </ul>

\* The USAID | DELIVER PROJECT's *Supply Chain Costing Tool: User Manual* is a key resource for assessing an organization's costs for transportation management.

Cost should never serve as the sole criterion for determining the potential advantages of outsourcing. A number of non-monetary variables must also be considered. Public health organizations should thus take the results of a cost-benefit analysis and then discuss them in relation to agreed-upon qualitative benefits of outsourcing. These benefits may include the following—

- Transportation improvements are likely to be more rapid through outsourcing to a capable outside party, leading to more rapid service improvements in health facilities and greater client satisfaction.

- Private sector providers often possess more up-to-date skills and technologies for certain transport management activities, enabling contracting organizations to benefit from knowledge transfer through collaboration.
- Outsourcing may improve the public's perception of government by showing that taxpayer money is being used in an effective manner.

## Implementing Outsourcing

An organization that has made the decision to pursue outsourcing must then seek to contract with a private sector provider and, finally, manage the provider in a way that ensures objectives are met. For the purposes of this guide, it is best for readers to consider a few key principles about contracting and contract management, and then consult more in-depth sources covering these two intricate processes (see Box 22 below); particularly because they can vary widely from environment to environment.

As emphasized in this module, outsourcing means finding a more advantageous option to addressing supply chain improvements in-house. Thus, an organization should be exhaustive in evaluating the quality advantages of prospective service providers, including by requesting references from existing clients, visiting the operation, evaluating vehicle and driver records, and even organizing trial runs. An often-overlooked detail in the search for quality is the financial and operational health of a prospective service provider. It is important to review fiscal and legal documents that will help indicate if there is a risk of sudden shut-down or non-completion of a contract.

The terms of a service contract may be structured in a variety of ways. For example, a contract for performing delivery services could be paid by a host organization to a service provider based on the number of days of service, the number of trips taken, total distance traveled, or the volume or weight of commodities transported.

Contract management is rooted firmly in the translation of intended objectives (e.g., reducing stockouts at service delivery points) into specific performance standards that can be monitored. Module 3 provides Key Performance Indicators for monitoring, such as on-time delivery, damages, and nonconformity. In an outsourcing model, other KPIs, like billing accuracy, will also be important to track. Ultimately, though, the contracting process should be structured to support attaining objectives, not simply measure them. An organization must organize a plan that guides the transition from in-house implementation to supervision of outsourced activities. Then, specific communications mechanisms should be defined in the contract that establish regularly scheduled opportunities for two-way feedback between the host and contractor so that service challenges are raised in a timely manner and solutions can be sought in a collaborative manner.

#### **Box 22. Published resources for supply chain contracting and contract management**

- *How to Select Suppliers of Third-Party Logistics Services* (Slater 1998).
- *Contracting for Health Care Service Delivery: A Manual for Policy Makers* (JSI 2004).
- *The Handbook of Logistics Contracts* (Jané and de Ochoa 2006).
- *A Guide to Key Performance Indicators for Public Health Managers* (Aronovich et al. 2010).
- *Emerging Trends in Supply Chain Management: Outsourcing Public Health Logistics in Developing Countries* (USAID | DELIVER PROJECT, Task Order I 2010).

## **Examples of Outsourcing TMS Activities**

To facilitate good management, most organizations that choose to contract all of their supply chain activities use a single service provider. In fact, when UNDP sought private sector expertise to implement a program-specific distribution network in DR Congo in 2005, it determined that it was also beneficial to outsource product procurement activities to the same private sector provider, despite the organization's ample experience in that area. Doing so created a cohesive supply chain that was implemented from start-to-finish by one contractor.

Even when outsourcing all supply chain activities, an organization may decide to limit the contractor's participation. In 1994, the Bangladesh MOH's Directorate General for Family Planning achieved appreciable cost savings by outsourcing 20% of its distribution network. Based on this initial success, the Directorate General decided it could progressively raise the private sector's share to as much as 80% by not replacing capital resources (mainly trucks) when they reached the end of their useful life and not hiring new transportation personnel when existing staff members took retirement or chose to leave the organization. The phased increase help avoid unwanted staff dismissals and wastage of workable capital. Moreover, by always retaining a percentage of its distribution network, the organization kept a desired amount of control, as well as flexibility for emergency shipments and back-up to resolve any problems with the private carrier.

## **Case Study**

### **Taking Monetary and Non-monetary Costs into Consideration**

The Ministry of Health in a sub-Saharan African country was confronted with frequent commodity stockouts at the clinic level, all despite procuring a sufficient amount of products to meet estimated needs and receiving on-time delivery from international suppliers at its central warehouse. In an effort to improve product availability (and service delivery), the Ministry formed a permanent stakeholder group to identify what was causing the stockouts and determine if outsourcing certain aspects of its non-core operations would achieve desired improvements.

Conducting a situational analysis, the group found that its transportation system suffered from low performance; vehicles were frequently unavailable for delivery because of maintenance and scheduling problems.

Following consultation with the Ministry of Finance on contracting regulations, the stakeholders conducted a cost-benefit analysis to determine the financial implications of outsourcing commodity delivery through a private fleet owner—

- Using the USAID | DELIVER PROJECT's *Supply Chain Costing Tool: User Manual*, they found that existing transport costs to service delivery points were \$55,000 per year.
- They estimated that the internal cost to improve service would be \$100,000 in the first year (including new equipment and training) and \$40,000 per year after the first year to increase capacity and manage the process.
- They requested estimates for regular transport from local transport services that owned their own vehicles, employed safety and security measures, charged per cubic meter or kilogram, and were able to respond to short-term and long-term transport requests. The lowest cost response that met these needs had an annual cost of \$50,000–\$55,000, depending on the MOH's final requirements.

Applying cost-benefit formula (*Potential cost effect = Cost to outsource – [Current internal costs + Internal costs to achieve desired improvements]*), the stakeholders determined that outsourcing would result in savings of \$60,000 to \$65,000 in the first year and \$0 to \$5,000 in following years.

In a subsequent discussion of non-monetary factors, stakeholders agreed that the use of an outside provider for transport could enable the MOH to deal with variable demand more efficiently, especially because a private sector transport company would have better short-term capacity to handle seasonal or emergency distribution of products. At the same time, they recognized that other considerations, such as labor laws in the country, made staff layoffs undesirable.

The group concluded that, although the costs of outsourcing were almost the same as internal improvement beyond the first year, the ability to see improvements sooner and to efficiently handle short-term changes made outsourcing the more desirable option. They thus decided that the Ministry should initially outsource its most remote delivery routes, where the private sector company had shown they had the capacity to deliver on time. Routes closer to the Central Medical Store were kept in-house and would gradually be turned over to the private sector as staff attrition occurred.

- How does this case study compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far? (to be considered in subsequent modules)



## Self Assessment

1. What is outsourcing?
2. What particular skills must an organization have or plan to develop if it wishes to consider outsourcing supply chain functions?
3. What are the two steps in determining whether outsourcing is a viable for your organization?
4. What is the most common equation for determining the potential cost effect (i.e., savings or increase) from outsourcing?
5. Give examples of non-monetary factors that should be discussed after a cost-benefit analysis has been conducted.
6. In addition to assessing the service quality that a private sector provider is likely to offer, what is another essential consideration when evaluating potential contractors?
7. What is the role of communications in the contract management process?
8. Should all supply chain aspects be outsourced? Explain your answer.

## Self Assessment Answers

1. What is outsourcing?
  - When an organization contracts with an outside service provider to carry out tasks (usually non-core tasks) that were previously performed in-house.
2. What particular skills must an organization have or plan to develop if it wishes to consider outsourcing supply chain functions?
  - Contract management skills
3. What are the two steps in determining whether outsourcing is a viable for your organization?
  - Deliberation and cost-benefit analysis
4. What is the most common equation for determining the potential cost effect (i.e., savings or increase) from outsourcing?
  - $\text{Potential cost effect} = \text{Cost to outsource} - (\text{Current internal costs} + \text{Internal costs to achieve desired improvements})$
5. Give examples of non-monetary factors that should be discussed after a cost-benefit analysis has been conducted.
  - Transportation improvements are likely to be more rapid through outsourcing to a capable outside party, leading to more rapid service improvements in health facilities and greater client satisfaction.
  - Private sector providers often possess more up-to-date skills and technologies for certain transport management activities, enabling contracting organizations to benefit from knowledge transfer through collaboration.
  - Outsourcing may improve the public's perception of government by showing that taxpayer money is being used in an effective manner.
6. Should all supply chain aspects be outsourced? Explain your answer.
  - Depending upon an analysis of monetary and non-monetary factors, an organization should determine which supply chain activities should be outsourced to achieve desired improvements. This may involve only some activities, or may involve the entire supply chain process.
7. In addition to assessing the service quality that a private sector provider is likely to offer, what is another essential consideration when evaluating potential contractors?
  - The financial and legal status of contractors (i.e., their ability to continue operating as a business).

8. What is the role of communications in the contract management process?
  - Communications provides an invaluable opportunity for host organizations and contractors to raise service challenges and propose solutions.



# Module 9. Policy and Policy Development

## Introduction

By the end of this module, you will be able to:

- explain why developing and reviewing policies are important for implementing a TMS
- understand the difference between policy and procedures
- identify who can provide information on transportation policy issues in need of change and recommend specific changes and how that information is channeled up to the higher level.

## Policies vs. Procedures

Policies are principles that direct actions for achieving long-term goals. Clear policies are needed to present an organization's objectives and strategies, defining the priorities of the organization. Developing a responsive transport management policy within a health service delivery environment is important because transport activities are closely linked with the availability of the supplies and equipment needed for a health system to provide services.

A large organization will have different sets of policies, some of which define how the organization is managed, such as finance, human resources, health and safety, and transport policies. Other policies define how the organization carries out its technical work, such as prioritizing primary health care and vaccinations over curative care.

Policies are usually high-level statements. Operating procedures and guidelines, also referred to as Standard Operating Procedures (SOPs) are subsequently developed to implement policy. Policies more specifically define organizational principles. They are likely to remain in place for some time, but should be reviewed on a regular basis. SOPs, can change more often.

SOPs provide the instructions needed to implement and translate policy into action. They contain instructions and step by step guidance to ensure there is consistency in how staff carry out their work. It also formalizes procedures helping to distinguish between what is actual policy and assumptions made about policy. When procedures are followed in a standardized manner, monitoring and assessing performance is much easier. As regulations, SOPs may include specific disciplinary consequences for non-compliance. SOPs may also serve as an on-the-job resource for staff. In many cases, SOPs are a local interpretation of policies. There is a need to distinguish the difference between policies and procedures.

**Table 6. Examples of Policies and Procedures**

<b>Policy Statements</b>	<b>Procedure/SOP</b>
Vehicles must be secured from theft.	<ul style="list-style-type: none"> <li>• Keys should always be left in a secure office or in a safe or transferred over to a transport manager at the end of each work day</li> <li>• Keys must never be left in an unattended vehicle.</li> </ul>
Comprehensive vehicle maintenance records must be kept for all vehicles	<ul style="list-style-type: none"> <li>• Staff are required to complete required vehicle mileage logs on a daily basis</li> <li>• Each provincial and district office shall submit a transportation report to the central transport office on the 15<sup>th</sup> of each month</li> </ul>
All transport staff should receive an orientation on the organizations transportation policies as part of a comprehensive introduction to the organization	<ul style="list-style-type: none"> <li>• Each new driver must read the office transport policy and sign a statement acknowledging they understand the transportation rules and regulations of the office</li> <li>• Each new driver will accompany a senior staff member for a week as part of his or her orientation</li> </ul>

An introduction to relevant policies—not just to SOPs—should be part of every new staff member’s orientation. Both policies and operating procedures should be fully disseminated to all staff so they are aware of and can correctly carry out the organization’s principles. More importantly, it essential that supervisors ensure their staff understands the policies and procedures by providing trainings or meetings to answer and clarify any questions. This allows staff to understand the principles that guide the tasks they perform, and the importance of complying with them.

## **Policies and Procedures in Decentralized Systems**

Some national health services are decentralized, meaning that decision making power and the responsibility for governance have been transferred from the central level to the regional or district level. It is possible that different types of transport systems will exist concurrently in decentralized settings, but basic transport management principles are very similar irrespective of whether services are centralized or decentralized. The main differences in decentralized systems are:

- procurement of vehicles occurs at the regional or district level, meaning that harmonization of vehicle types across the country is difficult to coordinate;
- securing bulk discounts is less likely because vehicle procurement happens on a smaller scale;
- money from the sale of old vehicles is returned to the local level; and
- oversight and responsibility of transport management are carried out at the lower decentralized level.

The practical effect of having different transport management policies and regulations between regions or districts in a decentralized system does not actually represent a considerable change from centralized systems. That is, because political and regulatory differences naturally develop in a

centralized system as it becomes more locally focused, the shift to a decentralized system tends to require few changes in this area.

## **Policy Structure for TMS**

An example of Ghana's Transport Policy (first published in 1993 and revised in 2004) is provided for reference for a TMS in Appendix B of this guide. While it is by no means a blueprint for policy development, it is an excellent example of a structure for addressing the policy components which should be part of a transport policy. The Ghana policy includes the five core areas that could be included in all transport policies—

- Human resources
- Operations Management
- Fleet Management
- Management Information Systems
- Safety
- Accident reporting

A section on Institutional Arrangements defines the roles of the MOH, other agencies, and how agencies should collaborate with each other.

## **Reviewing and Developing Policies: the Big Picture**

Policies should be reviewed periodically, and conducting a situation analysis discussed in the previous module provides an opportunity to carry out a transport policy review as part of a comprehensive transportation assessment.

The same formal procedures apply to policy reviews and situational analyses because one of their objectives is to gain senior managers' agreement for recommended changes. Changes to existing policy should be officially approved by the highest relevant administrative authority, and communicated to all staff whose roles, responsibilities and authority are affected.

Although managing transport for health is usually the direct responsibility of a Ministry of Health (or equivalent organization), certain transport elements may be controlled by other ministries' policies or impacted by other ministry unit's procedures. For instance, publishing tenders for the purchase of vehicles or for the disposal of government property should likely conform to government-wide policies. If the procurement unit is responsible for procuring vehicles they may have a schedule which limits the number of times procurement takes in a year possibly constraining the flexibility of the MOH to purchase new vehicles each year.

Some government-wide policies may not be well-aligned with all the elements of cost-effective transport management. For example, a replacement cost calculation (covered in Module 2) may indicate the need to decommission a specific 4 x 4 vehicle that has been on the road for four years and purchase another in its place, but a barrier may exist because government policy states that vehicles of this type should be used for a period of five years. It is thus important to understand and adapt to limitations. It is also important to recognize that, when a separate ministry (e.g., ministry of

finance) is responsible for vehicle purchase or for registering vehicles in their own name, the influence that an MOH internal review can have on policy change is unlikely to be strong.

Ultimately, transport policy must fit with existing policies from other departments, such as finance policies relating to budget allocation, tendering procedures; and human resource policies defining roles and responsibilities in job descriptions, levels of authority and departmental structures. Policy must also be consistent with national law.

## **TMS Stakeholder Role In Policy Development and Review**

Most TMS stakeholders do not directly determine policy as part of their job, but the feedback they give to their superiors (which is communicated up through the supply chain) on how policies and procedures affect their daily work can be a powerful tool for informing changes that will improve transport. In addition to receiving feedback during a situational analysis, there are other opportunities to determine if policies need to be updated to adapt to the current context. During supervision visits managers can learn about any transport issues from speaking with their staff. The people working at the local or health facility level have on-the-ground perspective that provide insight into whether policies developed at the central level succeed when applied at the lower level. For example, a new MOH policy states that all district level health facilities will receive a motorcycle to deliver commodities and provide outreach services to the community. The policy also states that the district is also responsible for repairs and maintenance of the motorcycles but the districts do not have the funds to cover this cost, either because the districts were not made aware of this policy or the MOH did not notify the MOF to allocate funds to the districts.

The supervisor can take this information to his or her own superior for consideration. They are an important link between high level policy making and the day-to-day operations at the lower level. This is also an example of ensuring that development of policies occurs with relevant stakeholders.

TMS stakeholders should be part of any discussions where policies are discussed or reviewed. Any stakeholder who may be involved with transportation or be affected by transport issues, such as logistics officers, transport officers, or central medical stores managers should be represented during policy reviews.

Important questions that stakeholders should ask themselves include--

- Are all of the policies that apply to the TMS known and understood?
- Are the policies disseminated to those who will be implementing them?
- Are all local procedures known and understood?
- Are these policies and procedures appropriate in terms of what generally happens on-the ground?
- Has the situation on-the-ground changed since these policies and procedures were developed? What new issue would an updated policy or procedure resolve and how?
- How often are policies reviewed and updated?
- Are there situations in which the best course of action is unclear because no corresponding policy or procedure exists? What issue would a new policy or procedure resolve and how?



- Are there policies or procedures that are an obstacle to the most efficient methods for managing or working in a TMS? In the specific case of a procedure, could it be effectively changed at the local level or does a constraint exist at the policymaking-level (i.e. central level)?
- Are policies or procedures monitored and enforced?

## Case Study

### A Story of Two Regions and One Policy

Last year was busy and complex for the Regional Ministry of Health office in the Maskion Republic's Karovia Region. A malaria-endemic area, Karovia implemented a campaign in February and March to deliver long-lasting insecticide-treated bed nets to every family with a child under the age of five. Then, towards the end of the year, severe flooding occurred in parts of the region, resulting in the destruction of several health posts and the loss of large quantities of essential medicines.

The Regional MOH worked tirelessly and successfully to meet the challenges it was faced with. Among other things, this meant that its fleet of 4 x 4 vehicles and trucks were making many more trips than usual; some traveled three times the distance they usually covered in a 12-month period. And, Transport Offices in the districts were increasingly reporting frequent repair needs.

Based on distance traveled, running cost, and availability, the regional ministry's Transport Manager recognized that five vehicles in the fleet needed to be replaced at year's end. Yet, only one of the vehicles was eligible for replacement because a national policy dictated that trucks and 4 x 4s were to be used for a period of five years.

The same year had been far more usual in the Orosia Region. The MOH continued to fulfill its expected delivery needs with few delays or exceptions. A newly-appointed Transport Manager was informed that, in keeping with local interpretation of national policy, all vehicles in the regional fleet that had reached five years of services were to be replaced. Through quick analysis, he saw that none of these older vehicles was nearing the end of its useful life.

When the central-level MOH held its next transport meeting, the Managers from both Karovia and Orosia raised the issue of the five-year replacement policy, both giving different examples of how using Key Performance Indicators would better inform the right time to replace vehicles. Nearly immediately afterwards, counterparts from the MOH, the Ministry of Finance, and the Ministry of Transport began to discuss the question of government-wide policy on vehicle replacement and began to discuss how policies can be more flexible and better adapted to meet each region's unique transportation needs.

- How does this case study compare to some of your own experiences?
- What surprises you about what occurred and what was done in response?
- Would you have done things differently? How?
- What lessons about effective TMS management were shown in relation to this module?
- How many other examples can you find on the points made about TMS development in this Guide so far? (to be considered in subsequent modules)



## Self Assessment

1. What is a policy?
2. What is the difference between a policy and operating procedures or SOPs?
3. Apart from transport policy, name three other types of policies that are relevant to transport.
4. What are the five key headings for any transport policy?
5. What is the link between a situational analysis and policy?
6. How can feedback on policies reach those who make policy?
7. Who can provide input on whether policies are working or need to be amended to fit the local context?

## Self Assessment Answers

1. What is a policy?
  - Policies are principles that direct actions for achieving long term goals. Policies are usually high-level statements from which operating procedures and guidelines are then derived. Policies more specifically define an organizations priorities and overall goals.
2. What is the difference between a policy and SOPs?
  - Policies define an organizations priorities and provide high level guidance. SOPs provide the instructions on how to implement and translate policy into action.n
3. Apart from transport policy, name three other types of policies that are relevant to transport.
  - Finance
  - Human resources
  - Health and safety
4. What are the five key headings for any transport policy?
  - Operational management
  - Fleet Management
  - Health and Safety
  - Human Resources
  - Management Information
5. What is the link between a situational analysis and policy?
  - Policy should be reviewed periodically, and a situational analysis provides an opportunity to carry out a policy review. The same formal procedures apply to policy reviews and situational analyses because their objective is to gain senior managers' agreement for recommended changes
6. How can feedback on policies reach those who make policy?
  - Supervisors should stay engaged with their staff to understand the on-the-ground situation and ensure these are shared at higher level meetings where decisions and policies are made. Anyone involved in a transportation role should be represented at these meetings.

7. Who can provide input on whether policies are working or need to be amended to fit the local context?
  - Anyone who may be involved with transportation or be affected by transport issues, such as logistics officers, transport officers, central medical stores managers have valuable information about how transportation policies should be formed or amended.



## Appendix A

# Core Transport Management System Forms

The following forms are included in Appendix A—

• Vehicle Check Sheet	pg. 160
• Vehicle Log Book	pg. 162
• Vehicle Defect Report for Vehicle Operators	pg. 163
• Trip Authority	pg. 164
• Period Movement Plan	pg. 165
• Period Transport Schedule	pg. 166
• Seven-day Transport Schedule	pg. 167
• Period Transport Report	pg. 168
• Period and Safety Issues	pg. 169
• Vehicle Inventory	pg. 170
• Vehicle Information Sheet	pg. 172
• Crash/Incident Report	pg. 173
• Crash/Incident Follow-up Report	pg. 175
• Vehicle Maintenance Summary	pg. 177
• Twelve-month Planning Schedule	pg. 178
• Assessor's Form for Vehicle Operator Assessment	pg. 179
• Vehicle Operator Report	pg. 180





## VEHICLE CHECK SHEET

VEHICLE REGISTRATION \_\_\_\_\_

VEHICLE LOCATION \_\_\_\_\_

VEHICLE MAKE/MODEL \_\_\_\_\_

### VEHICLE OUT

### VEHICLE IN

		DUE		ACTUAL				DUE		ACTUAL	
DATE						DATE					
TIME						TIME					
FUEL	E	1/4	H	3/4	F	FUEL	E	1/4	H	3/4	F
FUEL TANK CAPACITY						FUEL ADDED					
ESTIMATED FUEL USED						KILOMETERS END					
AVERAGE FUEL USE						KILOMETERS START					
						KILOMETERS USED					
						TRIP FUEL USE					

**OPERATOR**  
 NAME \_\_\_\_\_  
 DEPARTMENT \_\_\_\_\_  
 CONTACT NUMBER \_\_\_\_\_

**OTHER OPERATORS**  
 NAME \_\_\_\_\_  
 DEPARTMENT \_\_\_\_\_  
 CONTACT NUMBER \_\_\_\_\_

**COMMENTS ON  
CHECKING OUT**

**COMMENTS ON  
CHECKING IN**

CHECK ALL ITEMS ON VEHICLE OPERATOR CHECKLIST. NOTE ANY PROBLEMS AND LIST ADDITIONAL LOOSE EQUIPMENT OR SAFETY EQUIPMENT ISSUED BELOW	CHECK ALL ITEMS ON VEHICLE OPERATOR CHECKLIST. NOTE ANY PROBLEMS. CONFIRM RETURN OF ADDITIONAL LOOSE OR SAFETY EQUIPMENT LISTED IN THE PRECEEDING COLUMN.

**CHECKLIST – PAPERS**

TRIP AUTHORITY  
DRIVERS LICENSE


ID CHECKED

--

FUEL ISSUE VOUCHERS  
(Serial No.)

--	--	--

LOG SHEET BOOK  
RESPONSIBILITY CODE CHECKED

<p>AGREEMENT WITH ABOVE COMMENTS - VEHICLE OUT</p> <p>SIGNED TRANSPORT OFFICER</p> <p>SIGNED DRIVER</p>	<p>AGREEMENT WITH ABOVE COMMENTS - VEHICLE IN</p> <p>SIGNED TRANSPORT OFFICER</p> <p>SIGNED DRIVER</p>
---	--

CALCULATE FUEL USE AS FOLLOWS:

1. FUEL USED = FUEL IN TANK AT START + FUEL ADDED - FUEL IN TANK AT THE END
2. FUEL IN THE TANK CAN BE CALCULATED BY MULTIPLYING THE TANK'S CAPACITY BY THE FRACTION LEFT INSIDE (AS SHOWN ON THE FUEL INDICATOR).
3. FUEL USE = KILOMETERS TRAVELED ÷ THE FUEL USED

## Vehicle Log Book

[illegible]

## VEHICLE DEFECT REPORT FOR VEHICLE OPERATORS

VEHICLE REGISTRATION:

VEHICLE TYPE:

VEHICLE OPERATOR:

DATE:

Defects that affect roadworthiness must be cleared before the vehicle is used.		
Item	Checks	Remarks
General	Instruments, warning lights, seat, mirrors, windshield, wipers, washers, horn, doors, locks, tools, and jack.	
Brakes	Functionality, foot pedal, hand brake, handlebar level, adjustment, noise operation.	
Steering	Functionality, play at wheel, wander, pull, and position of handlebars.	
Lights	Functionality of headlights (dip/main), tail, brake, number plate, indicators, condition of reflectors.	
Engine	Oil/Coolant/Brake/Clutch fluid levels, windshield wash reservoir, leaks under vehicle, battery connections, exhaust smoke color, and unusual noise.	
Transmission	Clutch and gear change functionality, noise, engagement, and lubrication. For motorbikes, also check handlebar lever (for and chain adjustment.	
Wheel	Security of all wheel nuts, damage, hubs (including lubrication).	
Tires	Tread, damage, pressure, and spare availability.	
Body	Visible damage, and tightness of nuts and bolts.	
Fuel	Level, gas cap, damage, and leaks.	
Suspension	Spring condition, vehicle attitude, shock absorber leaks.	
Statutory	Legal signs (speed/weight), identification, vehicle documents, road/radio license, and log book available and/or visible.	
Safety	Seat belt, safety helmet, and other safety equipment.	

## TRIP AUTHORITY

AUTHORITY NO. \_\_\_\_\_

### TO BE COMPLETED BY PERSON REQUESTING TRANSPORT

START OF TRIP      DATE      \_\_\_\_\_      TIME      \_\_\_\_\_

END OF TRIP      DATE      \_\_\_\_\_      TIME      \_\_\_\_\_

NAME OF MAIN OPERATOR      \_\_\_\_\_      TITLE      \_\_\_\_\_

NAMES OF PASSENGERS      \_\_\_\_\_      DIVISION      \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PLEASE USE AND ASTERISK (\*) TO IDENTIFY ANY OF THE THE PASSENGERS WHO WILL ALSO OPERATE THE VEHICLE

PURPOSE OF TRIP (INCLUDE DETAILS OF ANY EQUIPMENT TO BE TRANSPORTED)      \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

ITINERARY/DESTINATIONS      \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### TO BE COMPLETED BY PERSONS APPROVING TRANSPORT

I HEREBY CERTIFY THAT THIS TRIP IS OFFICIAL AND THAT SUFFICIENT FUNDS EXIST TO PAY FOR IT

TRIP RECOMMENDED/NOT RECOMMENDED      SIGNATURE      \_\_\_\_\_

DATE      NAME      \_\_\_\_\_

TRIP AUTHORIZED/UNAUTHORIZED      SIGNATURE      \_\_\_\_\_

RESPONSIBILITY CODE FOR LOG SHEET            \_\_\_\_\_

DATE      NAME      \_\_\_\_\_

### TO BE COMPLETED BY THE TRANSPORT OFFICER

VEHICLE REGISTRATION      \_\_\_\_\_      VEHICLE TYPE      \_\_\_\_\_

VEHICLE CHECK SHEET COMPLETED?      YES/NO

VEHICLE ISSUED BY      \_\_\_\_\_      DATE      \_\_\_\_\_

   TRANSPORT OFFICER

VEHICLE RECEIVED BY      \_\_\_\_\_      DATE      \_\_\_\_\_

   OPERATOR



## PERIOD MOVEMENT PLAN

SECTION	PERIOD				YEAR		
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
WEEK 1 W/C							
WEEK 2 W/C							
WEEK 3 W/C							
WEEK 4 W/C							
WEEK 5 W/C							

PLEASE INDICATE ANY MOVEMENTS FOR WHICH THE DATES CANNOT BE CHANGED (INCLUDING SERVICE DATES) WITH AN ASTERIX (\*).  
 PLEASE INDICATE THE TRIP DESTINATION, THE RESPONSIBILITY CODE, THE NUMBER OF PEOPLE TO TRAVEL, AND THE DURATION OF THE TRIP.  
 W/C MEANS WEEK COMMENCING - MONDAY DATES SHOULD BE ENTERED HERE.

## PERIOD TRANSPORT SCHEDULE

[illegible]



## SEVEN DAY TRANSPORT SCHEDULE

LOCATION	PREPARED BY				DATE		
VEHICLE REGISTRATION	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY

## PERIOD TRANSPORT REPORT

LOCATION

PERIOD

YEAR

NUMBER OF VEHICLES  
NUMBER OF DAYS IN PERIOD


[illegible]


VEHICLE REGISTRATION NO	ALLOCATED TO	KM TRAVELED IN PERIOD	FUEL USED LITERS	FUEL UTILIZATION KM/L	AVAILABILITY DAYS			COST OF MAINTENANCE	RUNNING COST PER KM CALCULATED
					USED	GARAGE	IDLE		
TOTAL (1)		TOTAL (2)	TOTAL (3)		TOTAL (4)	TOTAL (5)	TOTAL (6)	TOTAL (7)	

## PERIOD AND SAFETY ISSUES

### ACCIDENT AND SAFETY ISSUES

Describe briefly any accidents or critical defects involving these vehicles. Note learning points positive and negative.

### MAINTENANCE

Describe briefly any noteworthy learning points regarding maintenance, positive and negative.

Comment on any vehicle days lost and specify any consequential service delivery work not carried out.

### PLANNING

Describe any noteworthy learning points regarding planning, positive and negative.

Comment on the timing of vehicle requests and on any service delivery work requirements not met due to deficient plans or met in emergency conditions

### OTHER COMMENTS

What are the trends: are transport availability and utilization improving; are costs increasing/decreasing; how is transport contributing to improvements in service delivery and performance?

Comment on any noteworthy Vehicle Operator issues.

PREPARED BY

DATE

APPROVED BY

DATE

COPIES MADE TO: (Note here)

## VEHICLE INVENTORY

MAIN LOCATION

DATE

VEHICLE	1	2	3	4	5
REGISTRATION					
MAKE					
MODEL/TYPE					
ENGINE SIZE					
CONDITION 1					
VEHICLE BASE 2					
ALLOCATION 3					
MAJOR USE 4					
ENGINE NO.					
CHASSIS NO.					
TOTAL KILOMETERS 5					
TOTAL KM/MONTH 6					
AVERAGE DAYS USED/MONTH 7					
MAIN OPERATOR 8					
YEAR					
COLOR					

NOTES FOR FILLING IN THE VEHICLE INVENTORY FORM 1:	
1	<ul style="list-style-type: none"> <li>• 1 = EXCELLENT (NO WORK REQUIRED)</li> <li>• 2 = GOOD (SOME WORK REQUIRED WITHIN 6 MONTHS)</li> <li>• 3 = FAIR (NEEDS MAJOR WORK)</li> <li>• 4 = POOR (UNRELIABLE, CANNOT BE USED FOR LONG DISTANCES)</li> <li>• 5 = OFF-ROAD AND AWAITING REPAIR</li> <li>• 6 = BEYOND ECONOMIC REPAIR</li> </ul>
2	PHYSICAL LOCATION OF THE VEHICLE
3	LOCATION FROM WHICH THE VEHICLE WAS ALLOCATED
4	THE MAJOR PURPOSE FOR WHICH THE VEHICLE ALLOCATED (REFER TO CODE IF ONE EXISTS)
5	CURRENT ODOMETER READING. INDICATE "B" IF BROKEN
6	ESTIMATE OF THE AVERAGE DISTANCE (KM) TRAVELED BY THE VEHICLE IN ONE MONTH
7	ESTIMATE OF THE AVERAGE NUMBER OF DAYS THE VEHICLE IS USED IN ONE MONTH
8	JOB TYPE OF PERSON WHO NORMALLY DRIVES THE VEHICLE (REFER TO CODE IF ONE EXISTS)
9	LIST OF SAFETY EQUIPMENT ALLOCATED TO THE VEHICLE (REFER TO CODE IF ONE EXISTS)

## VEHICLE INFORMATION SHEET

### MAIN LOCATION

VEHICLE REGISTRATION		
VEHICLE MAKE AND MODEL		
VEHICLE TYPE		
ENGINE CAPACITY		
FUEL TYPE		
ENGINE NUMBER		
CHASSIS NUMBER		
KEY NUMBER		
DATE VEHICLE SUPPLIED		
NEW VEHICLE?	YES/NO    IF NO, AGE WHEN SUPPLIED	
VEHICLE PROVIDED BY		
VEHICLE RECEIVED BY		DATE
VEHICLE ALLOCATED TO		
KEY VEHICLE DOCUMENT EXPIRY DATES		

### DISPOSAL OF VEHICLES

DATE VEHICLE DISPOSED OF		
REASON FOR DISPOSAL		
METHOD OF DISPOSAL		
MONETARY VALUE OF VEHICLE		
NAME AND SIGNATURE OF PERSON AUTHORIZING		

DATE RECORD LAST UPDATED

## CRASH/INCIDENT REPORT

SHEET 1 of 2

YOU ARE COMPLETING THIS FORM BECAUSE YOUR VEHICLE HAS BEEN INVOLVED IN A CRASH OR INCIDENT. BEFORE COMPLETING IT, YOU MUST ENSURE THAT ALL IMMEDIATE INJURIES, DANGERS, AND FURTHER CRASHES OR INCIDENTS ARE ATTENDED TO.

WRITE CLEARLY USING A PEN

### OPERATOR DETAILS

- 1 VEHICLE REGISTRATION NUMBER
- 2 TRIP AUTHORITY NUMBER (Attach a Copy)
- 3 VEHICLE OPERATOR'S LICENSE NUMBER
- 4 VEHICLE OPERATOR'S NAME

---

---

---

---

### CRASH/INCIDENT DETAILS

- 1 TIME CRASH/INCIDENT HAPPENED
- 2 DATE CRASH/INCIDENT HAPPENED
- 3 PLACE CRASH/INCIDENT HAPPENED
- 4 HOW MANY VEHICLES INVOLVED
- 5 HOW MANY WITNESSES SAW IT
- 6 HOW MANY PEOPLE INJURED
- 7 DRAW A SIMPLE DIAGRAM SHOWING WHAT HAPPENED

---

---

---

---

---

---

- 8 DESCRIBE THE DAMAGE TO OUR VEHICLE

---

---

---

---

---

TURN THIS PAGE OVER AND GIVE AS MUCH REQUIRED INFORMATION AS POSSIBLE.

## CRASH/INCIDENT REPORT

SHEET 2 of 2

### OTHER VEHICLES - FIRST VEHICLE

- 1 VEHICLE REGISTRATION NUMBER
- 2 WHO DOES THE VEHICLE BELONG TO
- 3 VEHICLE OPERATOR'S LICENSE NUMBER
- 4 VEHICLE OPERATOR'S NAME
- 5 INSURANCE COMPANY NAME
- 6 INSURANCE COMPANY POLICY NUMBER
- 7 VEHICLE OWNER'S CONTACT: NAME
- 8 VEHICLE OWNER'S CONTACT: TELEPHONE
- 9 VEHICLE OWNER'S CONTACT: ADDRESS

---

---

---

---

---

---

---

---

---

### OTHER VEHICLES - SECOND VEHICLE

- 1 VEHICLE REGISTRATION NUMBER
- 2 WHO DOES THE VEHICLE BELONG TO
- 3 VEHICLE OPERATOR'S LICENSE NUMBER
- 4 VEHICLE OPERATOR'S NAME
- 5 INSURANCE COMPANY NAME
- 6 INSURANCE COMPANY POLICY NUMBER
- 7 VEHICLE OWNER'S CONTACT: NAME
- 8 VEHICLE OWNER'S CONTACT: TELEPHONE
- 9 VEHICLE OWNER'S CONTACT: ADDRESS

---

---

---

---

---

---

---

---

---

IF THERE WERE MORE THAN TWO OTHER VEHICLES INVOLVED, USE ANOTHER SHEET

### POLICE INFORMATION

- 1 NAME OF OFFICER
- 2 NUMBER OF OFFICER
- 3 POLICE CASE NUMBER (Attach a Copy)

---

---

---

### WITNESSES

- 1 NAME
- TELEPHONE
- ADDRESS

---

---

---

- 2 NAME
- TELEPHONE
- ADDRESS

---

---

---

### CONFIRMATION

- 1 NAME OF PERSON WHO COMPLETED THIS FORM
- 2 DATE FORM COMPLETED
- 3 NAME OF PERSON WHO RECEIVED THIS FORM
- 4 DATE FORM RECEIVED

---

---

---

---



## CRASH/INCIDENT FOLLOW-UP REPORT

CRASH/INCIDENT REFERENCT NUMBER

VEHICLE REGISTRATION

DATE OF CRASH/INCIDENT

### ATTACHMENTS (To be received within 7 days of the above date)

- 1 CRASH/INCIDENT REPORT (2 Sheets)
- 2 TRIP AUTHORITY (Copy)
- 3 VEHICLE OPERATOR'S LICENSE (Copy)
- 4 POLICE CASE REPORT (Copy)

CHECK


### FOLLOW UP CODES TO BE USED ON SUBSEQUENT PAGES

- 1 Attachment received - progress
- 2 Police informed - progress
- 3 Insurance Company notified - progress
- 4 Condition and location of injured - progress
- 5 Notification of relatives of injured - progress
- 6 Contact with other vehicle owner(s) - progress
- 7 Contact with witnesses - progress
- 8 Notification to relevant parties internally - progress
- 9 Distribution of document copies - progress
- 10 Safe keeping of vehicle equipment, keys, etc.
- 11 Cancelation of any cards, notification of issuers
- 12 Arrange and follow-up on repairs - progress
- 13 Follow up with Vehicle Operator: discipline, training - progress
- 14 Conclusion - progress

### OFFICER RESPONSIBLE FOR FOLLOW-UP

NAME

DATE REPORT OPENED

[illegible]

Place this form at the front of the maintenance section in the vehicle.  
It will help with monthly returns.

## VEHICLE MAINTENANCE SUMMARY

SHEET No.

VEHICLE REGISTRATION

VEHICLE MAKE AND MODEL

MAIN LOCATION

DATE RECEIVED

NEW?:

AGE (IF NOT NEW);

DATE	KILOMETER READING	WORK DONE		GARAGE USED	COST		
					LABOR	PARTS	TOTAL

## Twelve-Month Planning Schedule

Year												
Reg. Number and Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

### ASSESSOR'S FORM FOR VEHICLE OPERATOR ASSESSMENT

Date \_\_\_\_\_  
Assessor \_\_\_\_\_  
Vehicle Operator's Name \_\_\_\_\_  
Staff Number \_\_\_\_\_  
Location \_\_\_\_\_  
Vehicle type \_\_\_\_\_

#### ASSESSOR'S OBSERVATIONS

##### **Fitness to Operate the vehicle**

License is valid and current  
Passed sight test  
Previous Experience of the Vehicle  
Physical attributes to consider

##### **General Points**

Correctly answered questions about the local driving code  
Showed proper recognition for road signs  
Demonstrated knowledge of the TMS and of transport policy  
Demonstrated knowledge about the vehicle  
Demonstrated knowledge of health and safety policy  
Demonstrated knowledge of accident/incident procedures

##### **Pre-Start Procedures**

Carried out daily checks fully and correctly  
Demonstrated knowledge of pre-trip documentation  
Correctly used the log sheet  
Set driving position and mirrors correctly  
Used a safety helmet or seat belt  
Used other necessary safety equipment and clothing

##### **Vehicle Operation**

Started engine correctly  
Consulted the instrument panel  
Showed consideration for other road users  
Showed consideration for the vehicle  
Used gears and controls correctly  
Approached hazards and maneuvered correctly  
Maintained appropriate speed for operating conditions

Discussed and understood:                      Assessor \_\_\_\_\_  
   Operator \_\_\_\_\_

## VEHICLE OPERATOR REPORT

Vehicle Operator's Name			
Staff Number			
Job Title			
Job Location			
Manager/Supervisor			
Training Details	Date	Course Title	Result
License Details	Type/Categories Covered	Number	Years Held
Endorsements	Date	Type	Description
Accident Record	First Occurrence	Second Occurrence	Third Occurrence
Date			
Injury - Vehicle Operator			
Injury - Other Party			
Damage - Departmental Vehicle			
Damage - Other Party			
Action Taken			
Vehicle Operator Details	Telephone	Date of Birth	Date Entered Service
	<u>Address</u>		

## Appendix B

# Ghana Transport Policy

The following is an excerpt from the Ghana Transport Policy (first published in 1993 and revised in 2004). The excerpt covers the policy's second section, *Policy Guidelines*. It does not include the first and third sections, which are outlined below—

### Section 1: Introduction

- Situational Analysis
- Strengths
- Weaknesses
- Opportunities
- Threats
- Aim
- Goal
- Objectives

### Section 3: Institutional Arrangements

- The Role of the Ministry
- The Role of the Agencies
- Inter Agency Collaboration





# Ghana Transport Policy<sup>2</sup>

**January 04 Ministry of Health**

## **CHAPTER TWO**

### **2.0 Policy Guidelines**

#### **2.1 Human Resource**

##### **2.1.1 Recruitment and Selection of drivers**

- Vacancies shall be advertised first within the organization and then externally or both.
- A minimum of SSSCE or its equivalent and drivers license not below 'D' class shall be eligible for consideration.
- Applicants should not be less than 25 years and not more than 35 years of age.
- Track record, experience and 2 referees of applicants shall be required.
- Medical examination shall be required.
- Applicants shall undergo proficiency test.
- Interviews shall be conducted for short listed applicants.

##### **2.1.2 Orientation**

- Transport personnel shall be properly orientated into the organisation's culture.

##### **2.1.3 Training**

- Drivers shall undergo regular in-service training on PPM, human relation, defensive driving, First Aid and fire fighting techniques
- Training of transport management personnel shall be in line with the MOH human resource policy

##### **2.1.4 Motivation and Discipline**

- Transport staff, who perform exceptionally shall be recognized and rewarded.
- Offending staff shall be sanctioned immediately after completion of investigation.

---

2 [http://moh-ghana.org/UploadFiles/Policies\\_Programs/TransportPolicyMOHJanuary2004090812075529.pdf](http://moh-ghana.org/UploadFiles/Policies_Programs/TransportPolicyMOHJanuary2004090812075529.pdf)

- Transport staff shall be provided with the appropriate uniforms and protective clothes

### **2.1.5 Officers Driving**

- Health personnel who drive MOH vehicles shall have a minimum of driving licence of 'B' category.
- Officers who meet this requirement shall seek authorisation.
- Drivers shall be assigned to officers on long distance travel.

## **2.2 Operational Management**

### **2.2.1 Vehicle Allocation and Distribution**

- Vehicle allocation shall be made in response to POW for the Health Sector.
- The Ministry shall periodically review criteria for the allocation of vehicles.
- The allocation shall be in the appropriate mix of type, makes and model for the different levels of service delivery and operations.

### **2.2.2 Allocation and Use of Motorcycles**

- Motorcycles shall be allocated where possible to an individual rider. However, other trained riders shall have access to the motorcycle.
- Officers shall undergo MOH Motorcycle Rider Training and must pass the Rider Competence Test before being allowed to ride a motorcycle.
- Motorcycles shall be used for the dispatch of mail/letters in cities and big towns.

### **2.2.3 Allocation and Use of Boats**

- Boats shall be allocated to riverine areas to facilitate access to communities isolated by inland water bodies. Basic navigational aids and equipment shall be provided and used at all times.
- Boats shall be piloted by trained coxswain/boatswain and navigator.
- Boats shall form part of the fleet inventory

### **2.2.4 Vehicle Pool**

- Vehicles shall be in the vehicle pool with the exception of duty post vehicles.

### **2.2.5 Duty Post**

- Duty post vehicles shall be allocated to directors and above and their analogous grades and shall undergo an orientation on basic vehicle management.
- Officers who use official vehicle shall not be paid car maintenance allowance for their private cars.

## **2.2.6 Programme Vehicles**

- Programme vehicles shall be assigned to programmes but shall be made available for use by other officers to undertake other activities outside the programmes when the need arises.

## **2.2.7 Identification of Vehicles**

- Vehicles shall be clearly identified by the logo or symbol of the Agency and where applicable that of the Funding Agency or Health Development Partner.
- Posting of Professional Association logos, political and other crests other than that recommended on MOH official vehicles is prohibited.

## **2.2.8 Vehicle Use and Control**

- The Ministry's Agencies shall develop operational policies and manual, which shall be in line with this document. These shall address among others the following issues:

### **2.2.8.1 Vehicle Planning**

- Vehicle planning shall form part of the Ministry's monthly and weekly planning process.
- The most suitable available vehicle to meet the requirements of a trip shall be allocated

### **2.2.8.2 Station Wagons**

- Station wagons shall be used for long distance journeys only.

### **2.2.8.3 Official Use of Personal Vehicles**

- Officers using personal vehicles for approved official business shall be reimbursed at the existing kilometric allowance rates published by the Ministry of Finance and Economic Planning.

### **2.2.8.4 Extraordinary and Personal Use**

- Extraordinary use of official vehicles such as social activities (funerals, marriage ceremonies etc) shall be authorized and duly recorded in the logbook. This shall include use by another government agency or department. The vehicle shall not be fuelled and must be driven by MOH drivers.

### **2.2.8.5 Transport of Staff**

- Vehicles shall not be used to transport staff to and from work. In exceptional cases such as long working hours, heads of institutions shall authorize the use of official vehicles.
- The Ministry shall operate staff bus service where it is considered economical. Staff should contribute to the running of such a service.

### **2.2.8.6 Communications**

- The Ministry shall advocate for the improvement of communication systems at all levels in the health sector in order to minimize vehicle use, reduce cost and improve vehicle availability for service delivery.

- All boats shall be fitted with effective means of communication to link them with their respective base stations.

#### **2.2.8.7 Public Transport**

- Public transport shall be used where it provides an economic and practicable alternative, especially in long distance travel. The Ministry shall reimburse the cost.
- An incentive shall be determined and paid for using public transport for official duties.

### **2.3 Fleet Management**

#### **2.3.1 Vehicle Make**

- The Ministry shall procure makes of new vehicles with strong dealership presence and after sales service facilities in the country.
- The dealership shall provide technical training for MOH maintenance staff and spare parts support for a minimum of 3 years.
- Inventory shall be kept on all transport recourses.

#### **2.3.2 Motorcycle**

- The Ministry shall procure makes of new motorcycles with strong dealership presence and after sales service facilities in the country.
- The dealership shall provide technical training for MOH maintenance staff and spare parts support for a minimum of 3 years.
- Motorcycles shall be procured and delivered in knockdown form as much as practicable. All motorcycles shall be supplied with two (2) crash helmets and shall be provided with in-built security locks.

#### **2.3.3 Bicycles**

- Bicycles shall be capable of withstanding harsh conditions.

#### **2.3.4 Boats**

- Boats shall be appropriate in relation to the river body on which it will be deployed.
- Boats shall have compartments for medicine, bed, motorcycle and bicycle.
- Motorization shall be outboard and not inboard.

#### **2.3.5 Vehicle Replacement**

##### **2.3.5.1 Four Wheel Vehicles**

- Vehicles shall be replaced after 7 years or 250,000 km.
- Specialized vehicles such as Ambulances, Haulage Trucks, Communication and Cold Vans shall be replaced after 12 years or 220,000 km.

### **2.3.5.2 Motorcycle**

- Motorcycles shall be replaced after 5 years.

### **2.3.5.3 Bicycle**

- Bicycles shall be replaced after 3 years

### **2.3.5.4 Boats**

- Outboard motors shall be replaced in accordance with manufacturer's recommendation or after 5 years.

## **2.3.6 Vehicle Acquisition**

### **2.3.6.1 Procurement**

Procurement of new vehicles shall be in accordance with the MOH Procurement Procedure Manual and the following:

- Meet the approved technical specifications
- Vehicles shall be new
- Previous experience with respect to vehicle operational performance
- Purpose for which vehicles is required
- Capacity to manage the vehicles
- Strong dealership presence, after sales service and spare parts stock in the country
- Qualified technical staff of the dealership
- Provision of training for MOH technical staff

### **2.3.6.2 Donations**

Donation of vehicles shall be in accordance with MOH donation guidelines and the approved technical specifications of the Ministry.

### **2.3.6.3 Vehicle Type and Model**

Vehicle type and model to be acquired shall be appropriate for the intended use.

### **2.3.6.4 Used Vehicles**

The acquisition of used vehicles shall not be encouraged.

### **2.3.6.5 Insurance**

- All vehicles shall be insured at least for third party.
- The Workman's Compensation Scheme, managed by the Ministry of Finance shall cover all authorized passengers. Ministries of Finance and the Attorney General's Departments will cater for all financial encumbrances and legal issues of the Ministry in relation to accidents and other transport related issues.

#### **2.3.6.6 Roadworthiness**

All vehicles including motorcycles and boats shall be roadworthy and shall have valid Roadworthy Certificates.

#### **2.3.6.7 Vehicle Maintenance**

The planned preventive maintenance strategy shall be the maintenance policy of the Ministry. The Ministry shall have an operational maintenance plan.

All vehicles shall be maintained regularly in accordance with the manufacturers' recommendation or MOH maintenance plan.

#### **2.3.6.8 Maintenance Workshops**

- MOH workshops shall be used for routine servicing and minor repairs only.
- They shall be equipped with the tools necessary for these tasks.
- Complex repairs shall be outsourced to "accredited" Workshops.

#### **2.3.6.9 Vehicle Spares**

Inventory management systems shall be institutionalised at all levels to facilitate the holding and management of spares.

#### **2.3.6.10 Disposal of Vehicle and Obsolete Parts**

The disposal of vehicles and obsolete parts shall be in line with the existing government regulation.

#### **2.3.6.11 Transport Model (minimum requirements)**

The Ministry in conjunction with its agencies shall determine the minimum vehicle requirement for service delivery and operations at each level based on the following:

- Programmes and operational requirements
- Geographical coverage
- Replacement policy
- Operational conditions

### **2.4 Management Information Systems**

#### **2.4.1 Vehicle Odometer**

- Vehicles shall have working odometers at all times.

#### **2.4.2 Vehicle Performance Measurement**

The following basic transport performance indicators shall be used at all levels:

- Kilometres travelled
- Fuel utilization
- Maintenance cost per kilometre

- Vehicle availability
- Needs Satisfaction (Performance)

### **2.4.3 Fuel Control and Issuing**

Bulk procurement of fuel coupons shall be made and kept at the Finance division and shall be issued to the transport office on request. Fuel allocation to vehicles shall be based on properly filled logbooks.

### **2.4.4 Transport Records**

MOH and its Agencies shall keep relevant transport records. All Agencies shall submit half yearly transport report to the Ministry.

Comprehensive vehicle maintenance records shall be kept and used in assessing vehicle and workshop performance. They shall also be used to determine the yearly maintenance budget.

The Ministry shall provide feedback on reports and monitoring support provided to all Agencies.

## **2.5 Safety**

### **2.5.1 Safety Equipment**

Vehicles shall be equipped with the required safety equipment such as seat belts, first aid box, fire extinguisher, warning triangles, helmets, life jackets etc.

### **2.5.2 Use of Safety Equipment**

- Drivers and passengers in MOH vehicles shall wear seat belts in line with the Road Traffic Regulations.
- Motor riders (including pillions) shall wear crash helmets.
- Passengers aboard a boat shall wear life jackets.

### **2.5.3 Driving under the Influence of an Intoxicant**

It is prohibited to drive under the influence of an intoxicant. Offenders shall be sanctioned.

### **2.5.4 Driving at Night**

Driving between the hours of 8 p.m. and 4 a.m. shall be avoided except in emergencies.

### **2.5.5 Unauthorised Passengers and Over-loading**

- Unauthorised passengers and goods shall not be carried on any official.
- Drivers shall ensure that vehicles are not overloaded. Offenders shall be sanctioned.

### **2.5.6 Smoking**

In line with the Ministry's policy on smoking within the premises of health facilities, smoking is forbidden in MOH vehicles.

### **2.5.7 Overnight Parking**

All official vehicles shall be parked at designated parking places. Officers and drivers shall be held responsible for any loss or damage as a result of non-compliance.

### **2.5.8. Over-speeding and careless driving**

All drivers shall strictly observe speed limits. The necessary punitive measures shall apply to all offenders. Reckless and careless driving shall constitute a punishable offence.

### **2.5.9 Accident Management**

## **2.6 Accident reporting**

The standard Ministry of Health (MOH) Accident Report Form shall be used to record any accident or incident on the vehicle. All accidents shall be reported to the Police immediately. All accidents (by Government policy) shall be reported to Ministry within 7 days.

### **2.6.1 Investigation Committee**

- An internal committee shall be set up to investigate and report on the cause of every accident.
- Appropriate action shall be taken and recorded.

### **2.6.2 Accident Prevention Programme**

- The Ministry shall participate in accident prevention programmes by the Road Safety Commission, Driver and Vehicle Licensing Authority (DVLA) and any other Road Safety related agency.



## Appendix C

# Resources for TMS Stakeholders

The **Fleet Forum** is focused on issues surrounding humanitarian fleets within the aid and development community. Its vision is to support efficient and effective humanitarian action by catalyzing the professionalization of fleet operations, increasing road safety and security, and improving the environmental impact of fleets. <http://www.fleetforum.org>

The **Global Road Safety Partnership** (GRSP) brings together governments and governmental agencies, the private sector, and civil society organizations to address road safety issues in low- and middle-income countries. GRSP is a hosted program of the International Federation of Red Cross and Red Crescent Societies (IFRC). <http://www.grsproadsafety.org>

The **Global Transport Knowledge Partnership** (gTKP) is an innovative partnership of global organizations, local policymakers, experts, and interested users working to make effective use of international transport knowledge. <http://www.gtkp.com>

The **International Forum for Rural Transport and Development** (IFRTD) is a global network of individuals and organizations working together towards improved access, mobility, and economic opportunity for poor communities in developing countries. <http://www.ifrtd.org>

**Riders for Health** is a social enterprise working to ensure all health workers in Africa have access to reliable transportation so they can reach the most isolated people with regular and predictable health care. <http://www.riders.org>



## Appendix D

# Transport Assessment Tool

### Introduction

Health programs can use the Transport Assessment Tool to review the performance of a transport system that manages any health commodity. The tool includes questions on numerous components related directly and indirectly to transport. The answers to these questions can be used to document the system's strengths and the areas that require attention; and to help identify opportunities for improvements.

### Overall Process

The Transport Assessment Tool can be useful to a variety of users. Facility-level staff can use it to conduct self-assessments; external assessors can use it to collect data from a number of facilities before they generate an assessment of a larger transport system. In either case, the tool will help determine which aspects of an ideal transport system are in place within a specific transport environment.

### For Individuals Conducting Self-assessments

Use this assessment tool to review the current status of transport-related issues within your existing operations. You may find that, within your system, some of the components addressed in the survey are not currently implemented or operational. The assessment will introduce the key concepts that are at the foundation of a transport management system.

### For Individuals Conducting Transport System Assessments

#### *Interviewing staff at facilities*

The Transport Assessment Tool is an interview guide to collect information from key informants. Because this may involve interviewing numerous people, the interviewer(s) will need to consolidate and reconcile the results into one final assessment report. This entire process can take one week or more, depending on the number of facilities visited. If you write one final report after the assessment is complete, it is recommended that a stakeholders' meeting be held to present and discuss the assessment findings.

#### *Selecting participants/interviewees*

To collect accurate data during an assessment about how each aspect of transport functions, you must have the right set of people with the right set of skills. Every participant/interviewee should have in-depth knowledge about one or more of the areas covered in the tool (see Key Areas).

### *Physical inspections of facilities*

Everyone that conducts the assessment should make field visits, when applicable. They may provide a sample of the current context or circumstances, adding additional insight into the information collection. During the field visits, use the assessment questionnaire.

## **Key Areas**

1. Administration
2. Operations management
3. Financial management
4. Fleet management
5. Human resources

## **Assessment Questionnaire**

The assessment questionnaire in annex 1 synthesizes data into a manageable number of questions that, together, provide an overall picture of the transport system. The questionnaire contains general questions and more focused questions. Summary boxes for strengths, areas requiring improvement, and comments are also provided.

## **Assessment Questionnaire Results**

The results sheet is used to consolidate and summarize the data from the assessment questionnaire, as well as the key strengths and areas that require improvement. To complete the results sheet, transfer the *strengths* and the *areas requiring improvement* that are the most significant for each section.

## Background Information

Date: \_\_\_\_\_ (dd/mm/yyyy)

Location: \_\_\_\_\_

Note taker: \_\_\_\_\_

Name of program: \_\_\_\_\_

Type of program: ☐ Government ☐ NGO ☐ Social marketing ☐ Private

☐ Other (specify): \_\_\_\_\_

Assessment level: ☐ Central ☐ Regional ☐ District

☐ Service delivery point ☐ Other \_\_\_\_\_

List the name and title of assessment participants:

Name	Title	Name	Title
_____	_____	_____	_____
_____	_____	_____	_____

## Section A Administration

1. How many people use the transport available at this location for commodity transport? List the number of people per department or office.
2. Who makes decisions about the transport and management of vehicles?
3. How many facilities are supported from this location?
4. How often does this location communicate about transport with the following?
  - A. From this facility to the next level **above**?
    - ☐ Never
    - ☐ Weekly
    - ☐ Bi-Weekly
    - ☐ Monthly
    - ☐ Quarterly
    - ☐ Annually
  - B. From this facility to the next level **below**?
    - ☐ Never
    - ☐ Weekly
    - ☐ Bi-Weekly
    - ☐ Monthly
    - ☐ Quarterly
    - ☐ Annually

STRENGTHS	AREAS FOR IMPROVEMENT
HIGHLIGHTS (include interviewee name, if applicable)	

## Section B Operations Management

### Current Fleet

Compile a list of vehicles, by category (light goods, passenger, motorcycle, bicycle) and by location; summarize their condition—not in need of repair, in need of repair, beyond economic repair. Please attach it to this assessment.

1. How often does this facility distribute to lower-level facilities?
2. What is the total number of days required to complete delivery to all lower-level facilities?  
*Note: For facilities with more than one vehicle, total the number of days used for each vehicle.*
3. On average, how many shipments are needed to supply facilities outside the normal distribution schedule? *Note: These are sometimes described as “emergency shipments”*
4. What would you expect to happen if you added a much larger volume of commodities to the current distribution system?

STRENGTHS	AREAS FOR IMPROVEMENT
HIGHLIGHTS (include interviewee name, if applicable)	



Section C Operations Management		Score 1 if yes 0 if no	Please explain
1. Do the regular transport users participate in transport planning and scheduling?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2. Does this planning include trips not yet confirmed, but anticipated?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3. Does this planning review any specifics related to the places where the transport will travel?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4. Are transport users responsible for negotiating with other managers who sign trip authorities for joint trips?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5. Are trips combined so that vehicles travel as full as possible?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6. Is transport allocated to take into account the service delivery priorities?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7. Is there a period movement plan/schedule?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
8. Are changes to the plan/schedule updated and the changes communicated to all concerned?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9. Is there a routine analysis to compare actual trips to the scheduled trips?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
10. Are enough functioning vehicles available, with available fuel and drivers, to meet the desired distribution schedule?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
11. Is a record kept of the type of roads that are or could be impassable (e.g., due to floods, lack of security, or truck size)?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
12. Is there a contingency plan in case the unpredictable happens (i.e., vehicle not functioning? Ex.: Using a third party)?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
13. In general, are orders delivered to lower-level facilities as scheduled?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
14. Are problems in the health commodity supply chain identified through formal processes, such as periodic supervisions, etc.?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>Total Global</b>			

STRENGTHS	AREAS FOR IMPROVEMENT
HIGHLIGHTS (include interviewee name, if applicable)	

Section D Financial Management		Score 1 if yes 0 if no	Please explain
1. Does the operations budget for this facility include line items for transport?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2. Do facility staff provide input into decisions regarding allocation of capital costs; for example, allocating resources to buy new vehicles?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3. Do staff with transport responsibilities have input into indicating potential funding shortfalls and identifying possible income strategies to meet those shortfalls?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4. Are guidelines in place for the selection and purchase of new vehicles?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5. Do staff with transport responsibilities actively participate in budget planning and monitoring, and authorizing transactions?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6. Do staff with transport responsibilities monitor the costs of vehicle maintenance?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7. Do staff with transport responsibilities budget for planned preventative maintenance?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
8. Do staff with transport responsibilities monitor fuel expenditures?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Total Global			

STRENGTHS	AREAS FOR IMPROVEMENT
HIGHLIGHTS (include interviewee name, if applicable)	

Section E Fleet Management and Monitoring: Transport		Score 1 if yes 0 if no	Please explain
1. Are vehicles only operated by a specified driver?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2. Are log books kept in every vehicle and are they routinely used?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3. Is the number of kilometers traveled by each vehicle calculated on a monthly basis?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4. Is the truck/trailer fill-rate recorded?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5. For each vehicle, is the number calculated for kilometers traveled per liter of fuel?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6. For each vehicle, is the amount of time calculated and recorded for when it was unusable, undergoing maintenance, and/or ready for use?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7. Are records kept of damages incurred on vehicles during transport?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
8. Is the efficiency/effectiveness of the loading and unloading procedures enhanced with the appropriate handling devices—trolleys, pallets, and forklifts?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9. Are <i>receiving and shipping</i> areas separated from each other?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
10. Is access to health commodities limited to only authorized personnel?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
11. Are other measures to prevent pilferage of stock items in place?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
12. Is some form of waybill or proof of delivery document used for transport transactions?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>Total Global</b>			

STRENGTHS	AREAS FOR IMPROVEMENT
HIGHLIGHTS (include interviewee name, if applicable)	

Section F Fleet Management and Monitoring: Vehicle Operations		Score 1 if yes 0 if no	Please explain
1. Does a senior manager hold copies of driving licenses for authorized and approved drivers in a central location?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2. Are the manufacturers' recommended standard maintenance procedures (e.g., replacement of fluids and filters) completed at the specified time?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3. Does a qualified mechanic conduct the manufacturers' standard maintenance procedures?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4. Does each vehicle operator perform routine daily checks on the vehicle and report anything that requires attention?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5. If a major defect is found, is the vehicle not used?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6. Can someone on the staff manage and ensure the quality of work undertaken by outside service providers?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7. Is someone responsible for ensuring that each vehicle operator performs routine daily checks on vehicles and reports faults that require attention?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>Total Global</b>			

STRENGTHS	AREAS FOR IMPROVEMENT
HIGHLIGHTS (include interviewee name, if applicable)	



Section G Health & Safety and Human Resources		Score 1 if yes 0 if no	Please explain
1. Does the facility have personnel responsible for transport management? Does everyone on the staff have clear job descriptions?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2. Is there an organizational structure for the transport management system (an organizational chart clearly showing each transport-related post in an organization)?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3. Is there sufficient staff capacity and authority to oversee transport management and to effectively run transport services?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4. Is training offered in fleet management?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5. Is training offered in transport planning?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6. Is training offered in budgeting and financial planning?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7. Is training offered in health and safety?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
8. Is training offered in defensive driving?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9. Do staff who manage transport have written job descriptions?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>Total Global</b>			

STRENGTHS	AREAS FOR IMPROVEMENT
HIGHLIGHTS (include interviewee name, if applicable)	

Section H Policy and Policy Development		Score 1 if yes 0 if no	Please explain
1. Are standard operating procedures (SOPs) available for vehicle allocation?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2. Are SOPs available for vehicle usage?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3. Are SOPs available for vehicle loans?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4. Are SOPs available for vehicle safety?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5. Are SOPs available for vehicle fueling?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6. Are SOPs available for the use of log books?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7. Are SOPs available for passengers?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
8. Are SOPs available for vehicle safety equipment?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9. Are SOPs available for vehicle crash and incident reports?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
10. Are SOPs available for vehicle insurance?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
11. Are guidelines available for the disposal of old vehicles?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
12. Are guidelines available for the expenditure on repair of vehicles?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
13. Are guidelines available for crash and incident reporting procedures?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
14. Are guidelines available for contracting transport to private transport providers?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
15. Are SOPs and guidelines regularly reviewed and revised?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Total Global			

STRENGTHS	AREAS FOR IMPROVEMENT
HIGHLIGHTS (include interviewee name, if applicable)	

## Assessment Questionnaire Results Sheet

SECTION	KEY STRENGTH	AREAS FOR IMPROVEMENT	SECTION SCORE (IF APPLICABLE)
A.			
B.			
C.			
D.			
E.			
F.			
G.			
H.			



For more information, please visit [deliver.jsi.com](http://deliver.jsi.com).

**USAID | DELIVER PROJECT**

John Snow, Inc.

1616 Fort Myer Drive, 11th Floor

Arlington, VA 22209 USA

Phone: 703-528-7474

Fax: 703-528-7480

Email: [askdeliver@jsi.com](mailto:askdeliver@jsi.com)

Internet: [deliver.jsi.com](http://deliver.jsi.com)