



Reforming the (semi-)informal minibus system in the Philippines

The 'Public Utility Vehicle Modernization Program'
Early Route Evaluation

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

On behalf of:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany


**Mobilise
Your City**

CHANGING TRANSPORT

Facilitating climate actions in mobility



We change transport
to limit global warming!

We promote sustainable transport worldwide to harness societal benefits, such as access to jobs, clean air and economic development, to improve quality of life and to fight climate change.

www.changing-transport.org

Project Background

Transport is the highest energy-consuming sector in 40% of all countries worldwide, and causes about a quarter of energy-related CO₂ emissions. To limit global warming to two degrees, an extensive transformation and decarbonisation of transport is necessary. The TRANSfer project's objective is to increase the efforts of developing countries and emerging economies for climate-friendly transport. The project acts as a mitigation action preparation facility and thus, specifically supports the implementation of the Nationally Determined Contributions (NDC) of the Paris Agreement. The project supports several countries (including Peru, Colombia, the Philippines, Thailand, Indonesia) in developing greenhouse gas mitigation measures in transport.

The TRANSfer project is implemented by GIZ and funded by the International Climate Initiative (IKI) of the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and operates on three levels.

Mobilise

Facilitating the MobiliseYourCity Partnership

The goal of the multi-stakeholder partnership MobiliseYourCity, which is currently being supported by France, Germany and the European Commission, is that 100 cities and 20 national governments commit to ambitious climate action targets for urban transport and take appropriate measures.

Prepare

Preparation of Mitigation Measures

Standardised support packages (toolkits) are developed and used for the preparation of selected mitigation measures. As a result, measures can be prepared more efficiently, until they are ready for implementation and eligible for (climate) financing. Accumulated over 10 years, the targeted measures aim for a total reduction potential of 60 MtCO₂.

Stimulate

Knowledge products, Training, and Dialogue

Based on these experiences, TRANSfer is sharing and disseminating best practices. This is achieved through the development of knowledge products, the organisation of events and trainings, and the contribution to an increasing level of ambition. Personal exchange of experience and dialogue is promoted at events, including the annual Transport and Climate Change Week in Berlin, the United Nations Climate Change Conference (COP) or the International Transport Forum.

Meet us at www.changing-transport.org

Disclaimer

The content presented in this document has been compiled with the utmost care. Nevertheless, GIZ gives no guarantee that the information provided is current, accurate, complete or error-free. GIZ accepts no liability for damage or loss arising directly or indirectly from the use of this document, provided it has not been caused intentionally or by gross negligence.

GIZ expressly reserves the right to modify or append this document in part or in whole without prior notice, or to halt publication completely or for a limited period. Cartographic presentations in no way constitute recognition under international law of boundaries and territories. The content of GIZ GmbH's documents is protected by copyright. The images used are marked with photo credits where required by law. The use of any images requires the prior consent of GIZ GmbH, if not stated otherwise.

Acknowledgements

We would especially like to express our sincere gratitude to the staff at the National Department of Transportation and the Land Transport Franchising and Regulation Board of the Philippine Government for their support of this study, to the modern jeepney route operators for their participation in the evaluation, to Diane Fajardo for leading the data collection and to Integrated Transport Planning Ltd for the use of the Transitwand software.

Content

Executive Summary	3
1. Introduction	6
1.1 The ‘PUV Modernization Program’ - Early Evaluation.....	6
1.2 Reporting Objectives	6
2. The ‘PUV Modernization Program’	7
2.1 Transport in the Philippines	7
2.2 ‘PUV Modernization Program’ Overview	8
2.2.1 Regulatory Reform	9
2.2.2 Fleet Modernisation	10
2.3 Industry Consolidation	11
2.4 Financing of Fleet Renewal.....	12
3. Evaluation of Early Implementation	14
3.1 ‘PUV Modernization Program’ Scheme Roll-Out	14
3.2 Collection of Early Operational Data	15
3.3 Evaluation of Early Operating Experiences	16
3.3.1 Fleet Modernisation	16
3.3.2 In-Vehicle Layout and Equipment	18
3.3.3 Vehicle Financing	19
3.4 Modern Route Characteristics	20
4. Summary of Findings	24
4.1 Operating Practices	24
4.2 Commercial Performance of New Routes	24
4.2.1 Operational costs	24
4.2.2 Ridership and Revenues	25
4.2.3 Overall commercial performance.....	26
4.3 Future Roll-Out and Challenges Ahead	27
Bibliography	28
Annex 1: Table A.1.....	29
Annex 2: Table A.2.....	31
Annex 3: Table A.3.....	35
Annex 4: Table A.4.....	36

List of Tables

Table 1: Number of operators in Metro Manila 11
 Table 2: Different types of modern jeepney operating on the surveyed routes 17
 Table 3: Comparison of operational characteristics of traditional and modern jeepney..... 21
 Table 4: Modern jeepney vehicle’s operating costs/mth..... 22
 Table 5: Commercial performance of operations over fifteen-year period..... 23

List of Figures

Figure 1: Modern jeepney passengers in Manila. 6
 Figure 2: Traditional jeepney vehicle.. 7
 Figure 3: Low-carbon pathway for road-based public transport. 8
 Figure 4: ‘PUV Modernization Program’ Components..... 9
 Figure 5: Old and new jeepneys alongside plying the streets of Manila..... 10
 Figure 6: Traditional jeepney drivers taking a break..... 11
 Figure 7: Consolidation strategy of the PUVM Programme. 12
 Figure 8: Modern jeepneys undergoing inspection..... 12
 Figure 9: Financing mechanism for the ‘PUV Modernization Program’..... 13
 Figure 10: DOTr Undersecretary Mark de Leon inaugurating a modern jeepney route in Cebu..... 15
 Figure 11: Transitwand on-vehicle public transport data capture tool. 16
 Figure 12: Typical bench seating arrangement on Hino-Almazora Jeepney compared with the front facing seating of the Yutong Jeepney..... 18
 Figure 13: In-vehicle equipment including AFCS, CCTV and passenger information system..... 18
 Figure 14: Vehicle investment costs..... 19
 Figure 15: Route alignment and stopping patterns on Gate 3-Guaadalupe (NCR) and Banawa-Panagdai IT (Region 7)..... 20
 Figure 16: Comparison of operational features of traditional and modern jeepneys. 22
 Figures 17 and 18: Boarding and alighting patterns on a traditional jeepney route..... 26
 Figures 19 and 20: Boarding and alighting patterns on a new jeepney route..... 26

Exchange rates

Philippine Peso	EUR	USD	Date
1 PHP	0.018 EUR	0.020 USD	21.11.2019

Executive Summary

The Public Utility Vehicle Modernisation Program

In the Philippines, an ambitious national reform programme is currently underway. The ‘Public Utility Vehicle Modernisation Program (PUVMP)’ will see the phasing out of the ageing ‘jeepney’ vehicles, the iconic and colourful jeeps which remain the most prevalent mode of motorised transport in the Philippines. These will be replaced with modern minibuses or buses meeting Euro IV emissions standards and new safety standards as part of a wide-ranging modernisation programme also including industry consolidation and franchising reform (see figure below).

‘PUV Modernization Program’ Components. Source: DOTr (2016).



Evaluation of Early Implementation Experiences

The first of the modernised jeepney routes commenced operation in 2018, with the number of new routes in operation now totalling more than twenty, with more than 80 routes from across the Philippines having been given provisional franchises for the introduction of modern jeepney operations. This represents a unique opportunity for the evaluation of the early operational experiences of the modernised jeepney route operators. This study reports on the early experiences collected through interviews with the modernised route operators and through on-bus surveys.

The data collected for this study provides unique insight into the experiences of the operators, and also detailed ‘real-world’ operating data to enable comparison of commercial performance achieved on the new routes in comparison to that of the traditional jeepney operations.

Modern and traditional jeepney in Manila. Source: GIZ (2019).



Operating performance observed on modernised routes

Typical operational characteristics of the new routes have been analysed and compared against that of traditional operations. Increased commercial revenues have resulted from the operation of the larger capacity vehicles and also increased operating intensity through the adoption of shift based staffing patterns rather than the traditional ‘boundary’ system in which a driver rents the vehicle by the day and operates just a single shift. The table below summarises the findings.

Comparison of operational characteristics of traditional and modern jeepney

Average (range)		Traditional Routes	Modern Routes	Average % ch.
	Daily operating hours	14hrs (13-15hrs)	19 hours (11-22 hours)	+36%
	Vehicle utilisation	127km (60km-190km)	150km (80-220km Euro IV diesel) (80-120km E-Jeepney)	+18%
	Days of operation per week	5.6 days (5.5-6 days)	6 days	+7%
	Staff per vehicle/day	1 driver (1-2 drivers)	2 drivers, 1.5 conductors (1-2.5 drivers, 0-2.5 conductors)	+350%
	Daily staff earnings	650 PHP (11.57 EUR) (574-755 PHP – 10.21-13.44 EUR) (non-salaried)	600 PHP (10.68 EUR) + benefits (537 M/W-1,000+ PHP – 9.56-17.80+ EUR) (salaried)	~
	Vehicle capacity	20 seats (16-24 seats)	30 seats max. (22-24 seated)	+50%
	Fuel economy	5.9 km/l (4.2-7.8 km/l)	5.2 km/l (4.2-6.2 km/l)	-12%
	Fuel economy per passenger/km	111 km/l	156 km/l	+41%
	Daily ridership Pax./day/vehicle	300 (150-350)	460 (Euro IV Jeep 300-750) (E-Jeepney 200-250)	53%

Source: Table by authors (2019).

Operation of the modern jeepney entails an increased investment requirement, due to the cost of the new vehicles. The different operating structure featuring salaried in-vehicle staff, the creation of a formal operating entity (cooperative or corporation) and fleet management also involve

additional overheads. Detailed analysis of the viability of operations considered the return on investment under modernised operations by comparison with investment in a traditional jeepney. This finds that despite the additional investment requirements, rates of return on investment can typically exceed that of traditional operations (see table below) over the 15 year life of the vehicle.

Commercial performance of operations over fifteen-year period (PHP/EUR)

	Traditional Jeepney	Modern Jeepney	
Vehicle type	Jeepney & Franchise	Euro IV Diesel Jeepney	Electric Jeepney
Investment	350,000 PHP (6,200 EUR)	1,925,000 PHP (34,000 EUR)	1,850,000 PHP (32,750 EUR)
Financing source	Micro-Finance	DBP Finance	DBP Finance
Financial Internal Rate of Return (FIRR)	32%	55%	52%
Net present value @12%	629,000 PHP (11,100 EUR)	881,000 PHP (15,600 EUR)	1,167,000 PHP (20,600 EUR)

Source: Table by authors (2019).

These findings demonstrate that modernisation can yield increased commercial performance for operators. The investment in larger vehicles leads to higher farebox revenues and formalised operations with shift-patterns and fleet management increase vehicle productivity and should yield economies of scale through collective maintenance and procurement of parts etc. The benefits of formal operations also extend to drivers and conductors who receive now formalised salaries and have reduced working hours due to shift-based operation.

Much of the return on the investment is realised over the longer term, in particular once the vehicle finance has been settled. This requires operators to take a longer-term view of investment returns rather than focusing on day-by-day profitability. This is likely to represent a significant change for the current small-scale traditional jeepney operator. However, taking a long-term view on investment returns would be familiar to corporations and should form part of the vision for the cooperatives who have formed to collectively operate the route.

Future role out and the challenges ahead

The success observed in early implementation, and the demonstration of the commercial benefits to operators set out within this study provides a positive foundation for increased pace of roll-out. The majority of modernised jeepney operators interviewed express a strong desire to increase fleet size and expanded operations to new routes.

Challenges remain however in the next phases of roll-out. As the number of developmental (completely new) routes which may be identified diminishes, greater emphasis must be placed on the transformation and modernisation of traditional operations on existing routes. This will increasingly require industry consolidation of the existing franchise holders.

The scale of financing committed by government to support vehicle financing is sufficient for over 14,000 new jeepney units, but the credit facility for modern jeepney loans only currently covers up to 1,400 units. Greatly increased allocation of funding from both financiers and government will be required to cover the c. 180,000 units to be replaced.

1. Introduction

1.1 The ‘PUV Modernization Program’ - Early Evaluation

A Stock-Take on Initial Roll-Out Experiences

In the Philippines, partner country of the MobiliseYourCity Partnership since 2017, a national reform programme is currently underway. Launched in 2017, the ‘Public Utility Vehicle Modernization Program’ (PUVMP) is an ambitious modernisation programme bringing in new regulatory requirements which will see the removal of ageing vehicles from public service and will also require transformation in current operating practices by nature of the proposed changes to the way in which franchises for the operation of services on routes will be granted.

The first of the modernised jeepney¹ routes commenced operation in 2018, with the number of new routes now totalling more than twenty. This represents a unique opportunity for the evaluation of the early operational experiences of the modernised jeepney route operators. Early experiences have been collected through interviews with the modernised route operators and through on-bus surveys.

1.2 Reporting Objectives

The objectives of this report are as follows:

- To provide an overview of the ‘Public Utility Modernization Program’ and its key features;
- To outline the characteristics of operations on the new routes, including details of the new vehicles which have been put into service;
- To present a **detailed analysis of operational characteristics observed from modernised route operations**, including the ‘real-world’ operating performance on the new routes with ridership levels, operating costs and commercial performance; and
- To present a **comparison in ‘real-world’ operating performance between the traditional and the modernised jeepney operations** to enable conclusions to be drawn on the impact on the industry of the modernisation programme.



Figure 1: Modern jeepney passengers in Manila.
Source: GIZ (2019).

¹ Jeepneys are customised, often very old, ex-military jeeps that have been converted to minibuses, with a seating capacity of 12-20 people on average.

2. The ‘PUV Modernization Program’

2.1 Transport in the Philippines

The Jeepney Is King

Public transport in the Philippines features an eclectic variety of modes, which include buses (city bus, provincial bus and premium A/C buses), taxis (traditional taxis and the dominant ride-hailing service ‘Grab’), ‘point to point’ minibuses known as ‘AUV’ (Asian Utility Vehicles) or ‘FX Express’, motorised or pedal powered tricycles and a limited number of rail lines for those in the metropolitan area of Manila, known as Metro Manila.

Figure 2: Traditional jeepney vehicle. Source: GIZ (2018).



It is however the humble ‘jeepney’ which presently dominates motorised transport in the country - the iconic converted (ex-military) jeep which for over seventy years have served Filipinos with public transport services that often are colourful and affordable, but also typified as uncomfortable, unsafe and highly polluting.

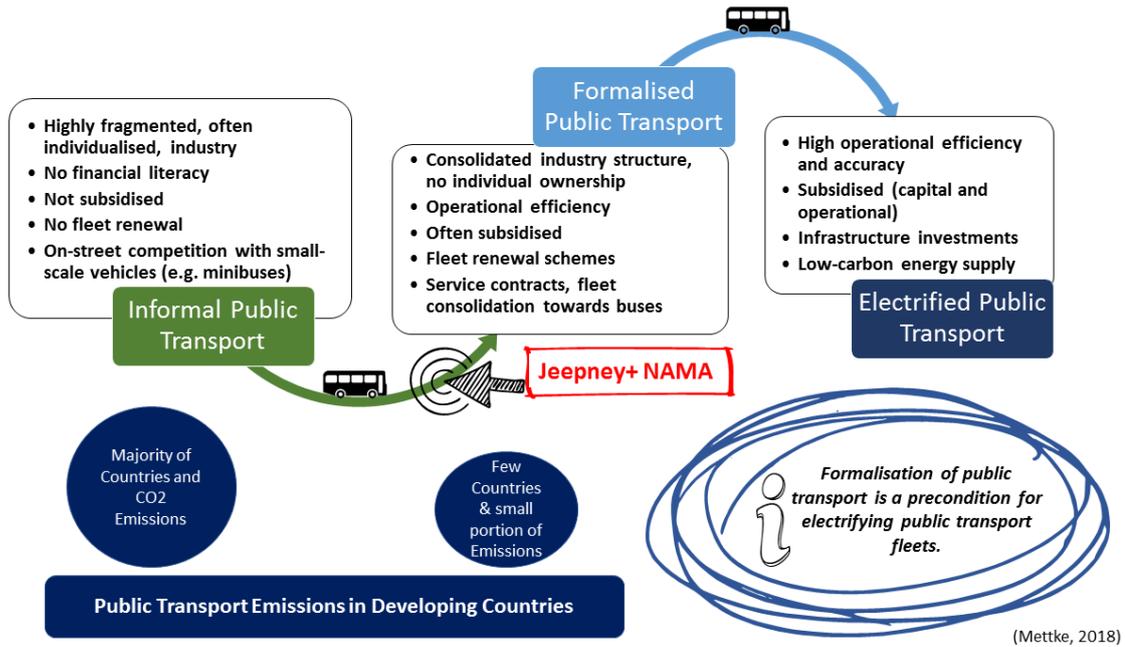
Estimates suggest there are around 180,000 jeepneys operating in the Philippines, plying routes in urban and rural areas across the country. In Metro Manila alone, it is estimated that there are 55,000 franchised jeepneys operating on more than 700 routes. The prevalence of illegal operators, known as ‘colorum’ which have proliferated as a result of the moratorium placed on the issue of new franchises back in 2003, suggests that the actual number of vehicles is likely to be even higher.

On the path towards decarbonising public transport, there are two different starting points. Only some rather advanced emerging economies have already undertaken serious efforts to formalise (parts of) their public transport. These few countries can start moving on towards electrification. More often, public transport service provision in many developing countries, including the

Philippines, is currently still dependent on (semi-)informal minibus based fragmented low-quality public transport systems.

This larger group of countries is responsible for the majority of greenhouse gas (GHG) emissions from public transport. The jeepney reform in the Philippines is an important showcase for the transformation of public transport in these countries. Countries still dependent on informal public transport need to undertake a huge transition firstly to formalise and professionalise their public transport industry moving gradually to larger capacity buses before the industry is in a position to introduce and sustainably maintain electric buses at scale (see Figure 3).

Figure 3: Low-carbon pathway for road-based public transport. Source: Authors



2.2 ‘PUV Modernization Program’ Overview

Transformative Change

In June 2017, the Department of Transportation (DOTr) of the Philippines launched the ‘Public Utility Vehicle Modernization Program (PUVMP)’, as part of the Duterte Administration’s plan to improve the quality and environmental sustainability of public transport operations within the country.

The initiative, which has now been passed into law, will, from 2020, see the **prohibition of public transport vehicles over fifteen years old from public service**, and require operators to utilise new vehicles conforming to the new minimum standards in relation to safety and emissions, and equipped with in-vehicle technology requirements in order to be issued with route franchises

Beyond vehicle modernisation, the ‘PUV Modernization Program’ includes wider reform with the planning and rationalising of public transport routes, transforming route franchise issuing

procedures and promoting industry consolidation and professionalisation to enhance service levels. Figure 4 outlines the programme’s components.

Figure 4: ‘PUV Modernization Program’ Components. Source: DOTr (2016).



2.2.1 Regulatory Reform

The regulatory changes are outlined within ‘Omnibus Franchising Guidelines on the Planning and Identification of Public Road Transportation Services and Franchise Issue’, Departmental Order No 2017-11 (DOTr, 2017). The order, sets out new vehicle specifications, franchise issue procedures and operating practices for all ‘Public Utility Vehicles’, including the Public Utility Jeepney, also known as the PUJ or jeepney.

New Vehicle Standards

Under the new regulations, public utility vehicles will be required to meet minimum standards in relation to safety and emissions, with certain on-vehicle technology requirements in order to be issued with route franchises.

From Vehicle-Based to Route-Based Franchise

The PUVMP also brings about a fundamental change in the way in which franchises are issued. Prior to the moratorium on new franchise issuance, which has been in place since 2003 under Memorandum Circular No. 2003-028 (LTFRB, 2003), franchises would be issued to operators with a Certificate of Public Convenience (CPC) for a single vehicle or a number of vehicles to operate on a route. Acceptance of new franchises on an existing route followed a verification that the demand merited the additional capacity, by means of a formula known as the Route Measured Capacity (RMC). As a result of the past franchising arrangements, multiple operators serve the same route, operating in competition with each other.

Under the new franchising guidelines, the Land Transportation Franchising and Regulatory Board (LTFRB) will publish a call for applications to serve a route, and invite applications to operate the route. The number of vehicles required, and service standards will be specified in the call. New franchises will be issued only to a corporation or an operator cooperative. This represents a major shift in franchising approach, enabling the LTFRB to issue a franchise on a route by route basis rather than on the present fragmented individual operator-plus-vehicle basis. An important feature of this change is that this enables fleet management for operations on a particular route, with the

operator having the ability to regulate headways and manage vehicle utilisation in a way that the present fragmented market structure prevents.

Move from Competition in the Market to Competition for the Market

This new regulatory approach aims to bring about a move away from on-street competition. However, with such a fragmented market structure, the majority of existing operators will be required to consolidate in order to be able to provide the necessary number of vehicles to serve the route. Indeed, the franchise eligibility criteria now specifically requires the applicant to either be a cooperative or a corporation.

2.2.2 Fleet Modernisation

Safe, Efficient and Dignified

The modernisation of the vehicle fleet will follow as a direct result of the new regulatory requirements on vehicle specification. The main vehicle standards and requirements are as follows:

- Compliance with Euro IV emissions standards as a minimum,
- Compliance with Philippine National Standards with regard to safety features, and
- Vehicles to be equipped with CCTV, Global Navigation Satellite System (i.e. GPS) and Automated Fare Collection System (AFCS).

Figure 5: Old and new jeepneys alongside plying the streets of Manila. Source: GIZ (2019).



2.3 Industry Consolidation

From Fragmentation...

The jeepney sector is highly fragmented, characterised by a large number of small-scale operators. Almost 80% of operators in Manila own just a single vehicle, with less than 1% of operators owning ten or more vehicles, leading to an average operator-to-vehicle ratio of just 1.3 (Table 1).

The fragmentation of the jeepney sector and the domination of single franchise holders/operators is one of the biggest barriers towards fleet modernisation, as financial literacy and capacity is very limited.

Table 1: Number of operators in Metro Manila

Vehicle	Number of Operators	Proportion of Operators
1	19,098	78.3%
2	3,696	15.2%
3-9	1,447	5.9%
10+	146	0.6%
Total	24,387	100%

Source: Authors' analysis of LTFRB data (2018).

Figure 6: Traditional jeepney drivers taking a break. Source: GIZ (2019).



...to Consolidation

Under the new regulatory arrangements, franchise can only be issued to a corporation or a cooperative. In order to remain in the industry, the jeepney sector must consolidate, moving from individual franchise holder to part of an operator cooperative or corporation. Consolidation is the core pre-condition in order to achieve the overall reform objectives and for the financial support mechanism to be sustainable, as Figure 7 illustrates.

Figure 7: Consolidation strategy of the PUVM Programme. Source: Authors.

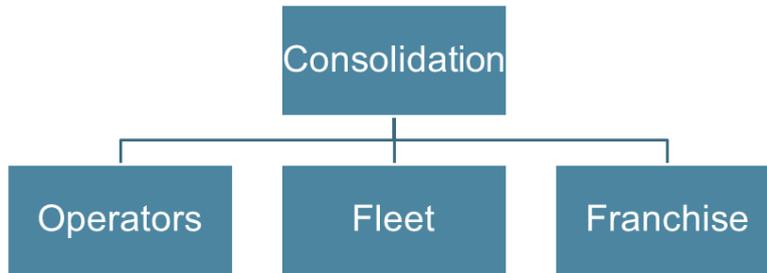


Figure 8: Modern jeepneys undergoing inspection. Source: DOTr (2018).



2.4 Financing of Fleet Renewal

Significant Barriers

Detailed analysis of the traditional jeepney operator business model identified significant constraints in the ability of incumbent operators to access the finance required to enable investment in new vehicles and to support the repayments on commercial terms. Recommendations resulting from the analysis undertaken informed the PUVMP financing mechanism ultimately adopted by the Philippine Government.

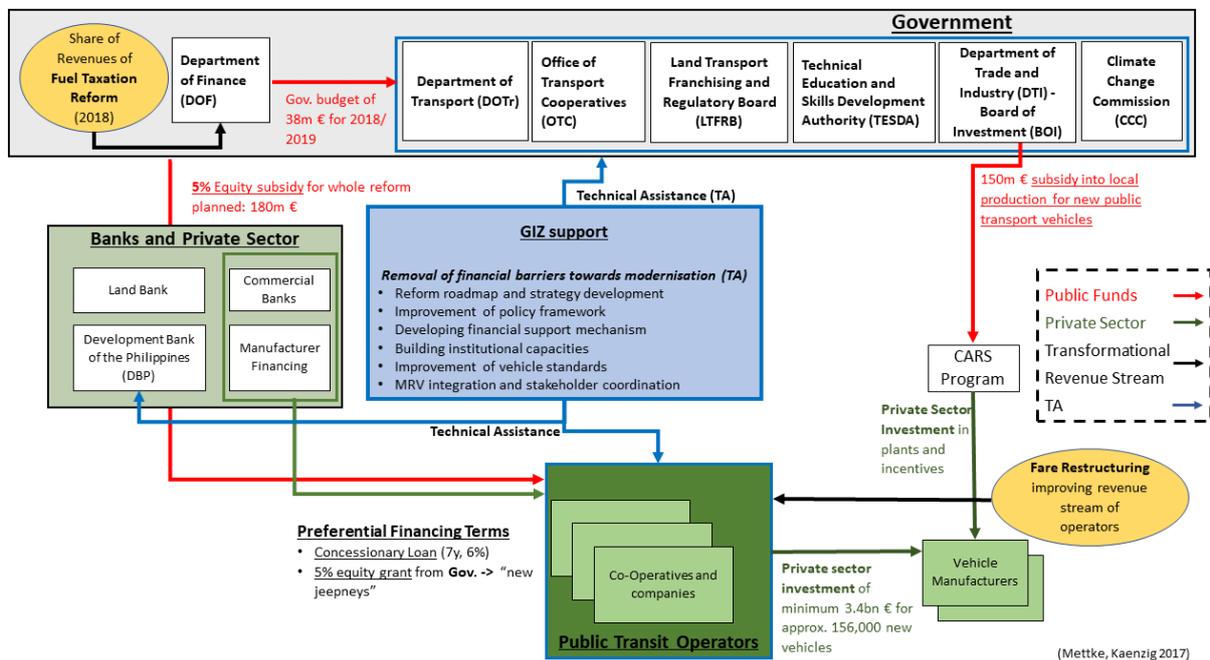
Recognising the need for sectoral support in financing new vehicles, both from an operator perspective and to achieve the desired aims of the program, the Philippine Government in partnership with the leading National Development Banks, Development Bank of the Philippines (DBP) and Landbank, have developed a financial assistance programme to support operators in making the necessary investment in modern Jeepney vehicles.

The financing model, which has colloquially been badged as the ‘5,6,7,8 model’, has the following loan attributes:

- **5% down-payment,**
- **6% annual interest** (typical rate – Landbank will in some cases demand a higher rate),
- **7-year amortisation term** (with a six-month initial grace period), and
- **Subsidy of 80,000 PHP** (1,419 EUR - 1,560 USD) (up to 5% of vehicle cost) for surrendering old franchise.

The financing mechanism for the ‘PUV Modernisation Program’ is summarised in Figure 9.

Figure 9: Financing mechanism for the ‘PUV Modernization Program’.
Source: Authors.



3. Evaluation of Early Implementation

3.1 ‘PUV Modernization Program’ Scheme Roll-Out

A Mark in History - National Roll-Out

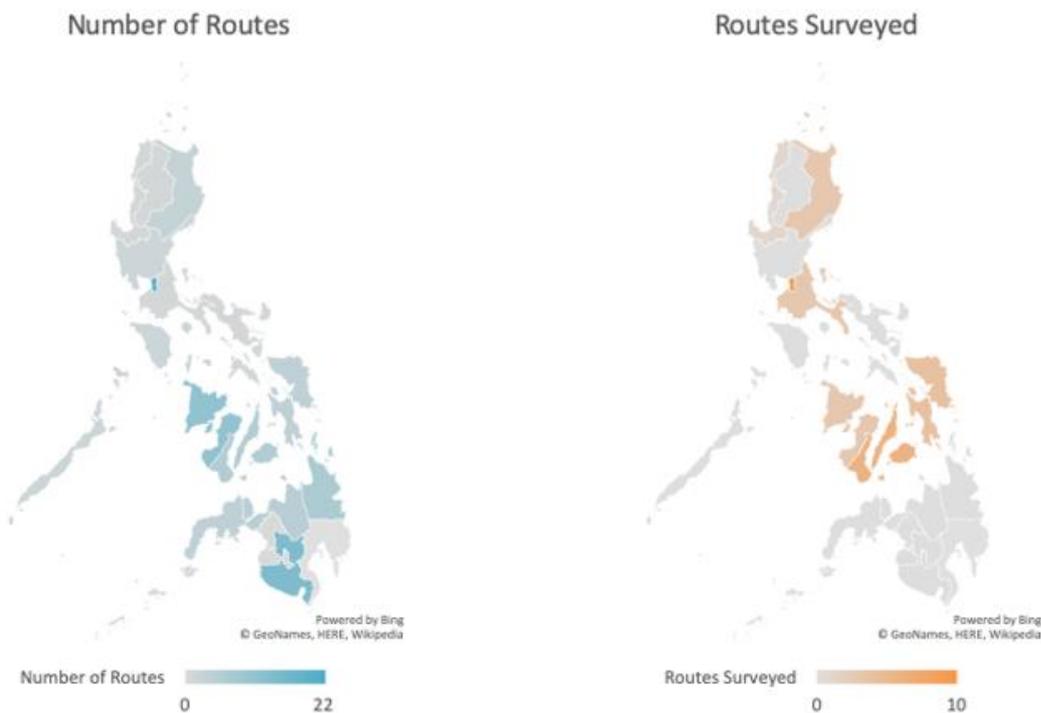
The first two modern PUV routes delivered under the ‘PUV Modernization Program’ commenced operation in Manila in June 2018, with modern jeepneys operating in Taguig City and Pateros. Since then, further routes have received authorisation to operate, though the issue of a provisional franchise. Approaching the end of 2019, the roll-out has gathered pace with:

84 identified routes for modernised operations **to be served by 2,500 new jeepney vehicles.** Of which:

- **30 routes in operation in 2019 across six regions in the Philippines, with a modern jeepney vehicle fleet approaching 500 vehicles.**

The modern jeepney routes issued with franchise for operation by region:

Figure 10: Modernised Jeepney Routes (left) and Surveyed Routes (right). Source: GIZ (2019).



Modernised routes surveyed			
National Capital Region <ul style="list-style-type: none"> ▪ 10 routes ▪ 208 vehicles 		Region 1 <ul style="list-style-type: none"> ▪ 1 route ▪ 4 vehicles 	Region 2 <ul style="list-style-type: none"> ▪ 3 routes ▪ 50 vehicles
Region 4a <ul style="list-style-type: none"> ▪ 3 routes ▪ 56 vehicles 	Region 6 <ul style="list-style-type: none"> ▪ 3 routes ▪ 15 vehicles 	Region 7 <ul style="list-style-type: none"> ▪ 6 routes ▪ 115 vehicles 	Region 8 <ul style="list-style-type: none"> ▪ 4 routes ▪ 60 vehicles

3.2 Collection of Early Operational Data

The roll out of the new jeepney routes in regions across the different regions of the Philippines is offering travellers a first experience of the new jeepney vehicles and the impact of the reforms on travel conditions on these routes.

A Proud Moment for the Philippines

Figure 10: DOTr Undersecretary Mark de Leon inaugurating a modern jeepney route in Cebu.
Source: GIZ (2019).



The initial roll-out of modernised operations represents a significant and time-bounded opportunity to collect information on the **operational performance of the new vehicles and operator experiences** in order to **evaluate the early implementation experiences** of those participating in the scheme in order to disseminate the findings as the roll-out of the PUVMP remains underway.

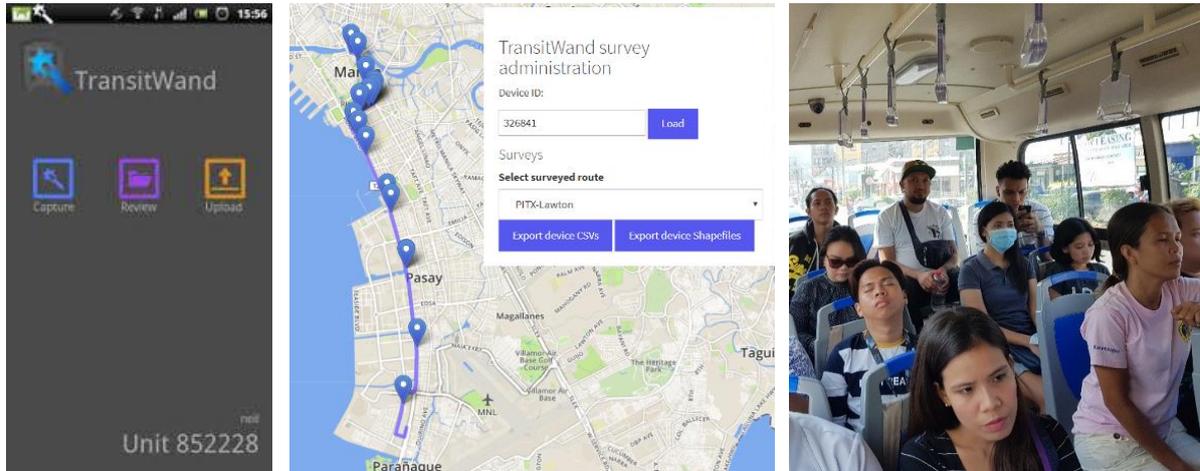
Accordingly, during the summer of 2019, a data collection exercise was conducted to capture these experiences and the operational data to provide insight into **‘real-world’ operating conditions and commercial performance** of modern operations.

The data collection took two forms:

- **Face-to-face stakeholder interviews** with
 - Modernised jeepney route operators,
 - The Department of Transportation as the scheme promoter, and
 - The Development Bank of the Philippines (DBP) as the largest lender in the PUVMP financing programme; and
- **On-vehicle GPS surveys** collecting a range of useful data on operating conditions and performance including the GPS capture of the route alignment, stopping points, travel time and the boarding and alighting and loading patterns observed on each route.

Collection of ‘Real-World’ Operating Data

Figure 11: Transitwand on-vehicle public transport data capture tool. Source: ITP Ltd (n.d.).



3.3 Evaluation of Early Operating Experiences

An Operator’s Perspective

This evaluation of early implementation experiences focuses specifically on the experiences of the new jeepney operator and on the commercial performance of modernised routes. Whilst an improved passenger experience is of utmost importance, and indeed the principal reason for the modernisation programme, the success of the programme is dependent upon participation by the industry, and therefore the emphasis of this evaluation is placed on understanding of operator experiences of the scheme.

The evaluation considers in turn the main elements of the new operating regime, looking at the new vehicles, the new routes, operating practices, and commercial performance achieved during the initial implementation phase. This is compared against that typical of traditional jeepney operations where relevant, to set the observed performance in context against local expectations.

3.3.1 Fleet Modernisation

A Range of Options...

Providing the modern jeepney vehicle conforms to the new regulatory standards, the procurement decisions in relation to vehicle supplier are down to the individual operator. A range of suppliers offered prototypes compliant with the new standards and the route surveys find operator’s vehicle choice has been varied.

Vehicles have been procured from manufacturers in China, Japan, India and the Philippines, with local body builders in many cases providing coach building services. The majority of operators of the routes surveyed deployed **‘Type 2’**:

- 22-24 seats,
- 30 maximum capacity (including standing),
- Euro IV diesel (or above), or electric jeepney,
- Air conditioned or non-air-conditioned.

Table 2: Different types of modern jeepney operating on the surveyed routes

The Modern Jeepney Vehicles ('Type 2' Vehicles)	
	
Hino XU343 (Japan). 24 seated, 6 standing	Isuzu-Centro (Japan, Philippines). 23 seated, 7 standing
	
Yutong (China). 21 seated, 9 standing	Mahindra T20 (India). 22 seated, 8 standing
	
Star 8 Electric Jeepney (Philippines). 22 seated, 8 standing	Isuzu, Almazora (Japan, Philippines) 24 seated, 8 standing

Source: Table by authors (2019).

3.3.2 In-Vehicle Layout and Equipment

Tradition Combined with Technology

With an authorised passenger capacity of 30 passengers (including standing) the modern jeepney are **higher capacity** than the typical traditional jeepney with a capacity of 16-24 seats and no standing passengers. This size of modern jeepney vehicle is classified as ‘Class 2’ vehicles under the Philippine National Standards for Public Utility Vehicles (DTI, 2017). Almost all vehicles adopt the side-facing bench seating typical of the traditional jeepney, with seated capacity therefore dependent on passenger proximity.

Figure 12: Typical bench seating arrangement on Hino-Almazora Jeepney compared with the front facing seating of the Yutong Jeepney. Source: GIZ (2019).



In accordance with the new Omnibus Franchising Guidelines, the vehicles are equipped with the required in-vehicle equipment which includes automated fare collection systems (AFCS), closed circuit television (CCTV) and Wi-Fi. At the time of the surveys, whilst equipped with the machines, the AFCS systems on the vehicles were not in operation, due in most cases to technical challenges. Driver or conductor cash-based collection, or cash-box represented the main means of fare collection.

Figure 13: In-vehicle equipment including AFCS, CCTV and passenger information system. Source: GIZ (2019).

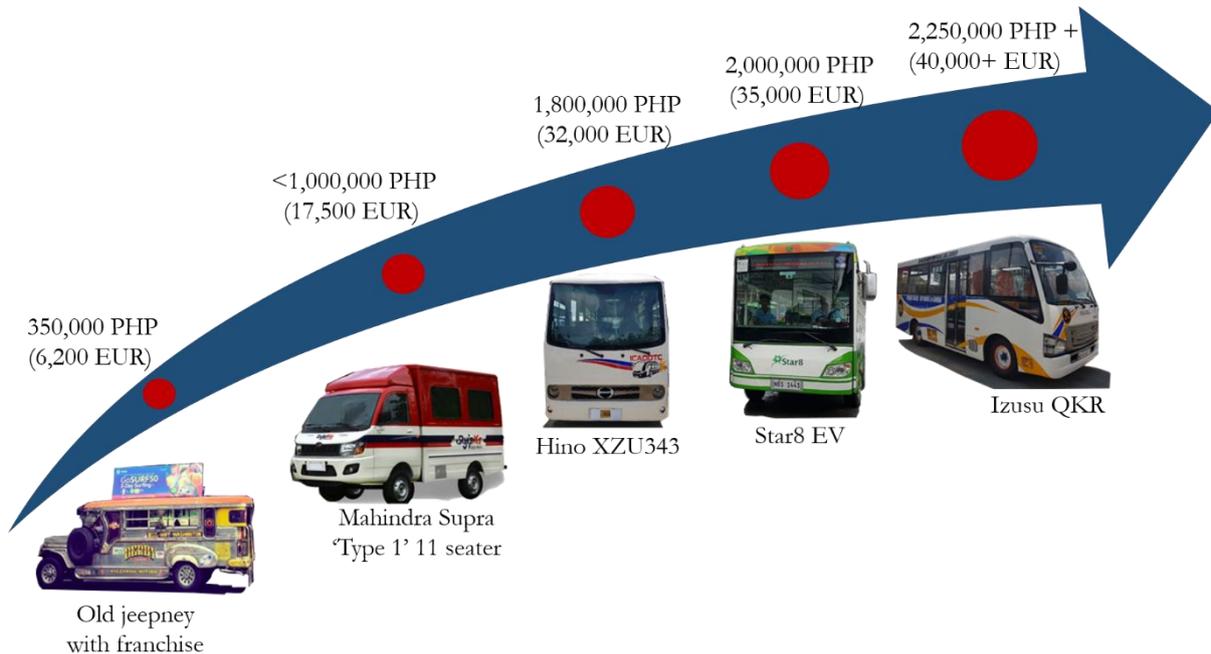


Invest to Progress

The increased investment cost of the modern jeepney represents one of the greatest points of concern for the traditional jeepney operator. Since the franchise moratorium, the main route of entry into the jeepney sector has been the purchase of a second hand jeepney holding a franchise. The cost would vary according to the franchised route but may typically have cost 350,000 PHP (6,200 EUR). By comparison, a new traditional jeepney without franchise may cost 650,000 PHP (11,500 EUR).

Procurement cost for the larger Type 2 Jeepney are found to typically range from 32,000 EUR to 42,000 EUR. With a minimum route vehicle requirement of fifteen vehicles, an operator would be looking at a minimum investment of around 0.5 million EUR to be able to take on a modernised route franchise.

Figure 14: Vehicle investment costs. Source: Figure by authors.



The financial support mechanism was developed in recognition of the challenges operators would face in meeting the investment requirements.

3.3.3 Vehicle Financing

Modest Down-Payment, Longer Repayment

Whilst vehicle cost and investment requirement is higher than for the traditional jeepney, the structure of the financial support package means that upfront investment requirements are actually minimal. The majority of operators surveyed had taken advantage of the PUVMP financing support offered through national development banks. The preferential loan extended under the scheme covers 95% of the vehicle cost, requiring only a 5% deposit.

In addition, operators who are relinquishing an old franchise can receive a grant of up to 5% of the vehicle cost, to a maximum of 80,000 PHP (1,400 EUR). Whilst the value of this grant does not cover the full operator down-payment requirement (the value was determined on an anticipated vehicle cost of 1.6 million PHP; 28,000 EUR), this serves to reduce the upfront capital requirement from the operator to a maximum of 700 EUR even for the most costly vehicle.

Whilst upfront deposit requirements may remain low, the operator is of course responsible for repayment of the 95% loan over the seven-year term. Based on typical procurement costs of the modern jeepney, the amortisation for the PUVMP preferential loan is as follows:

- **26,715 PHP (470 EUR) per month** for the Euro IV Diesel air-conditioned jeepney costing 1.925 million PHP (34,350 EUR); and
- **25,675 PHP (450 EUR) per month** for the Electric Jeepney costing 1.85 million PHP (33,000 EUR).

3.4 Modern Route Characteristics

A Combination of New and Old

The routes issues with franchises for modernised operations represent both existing routes and newly identified routes:

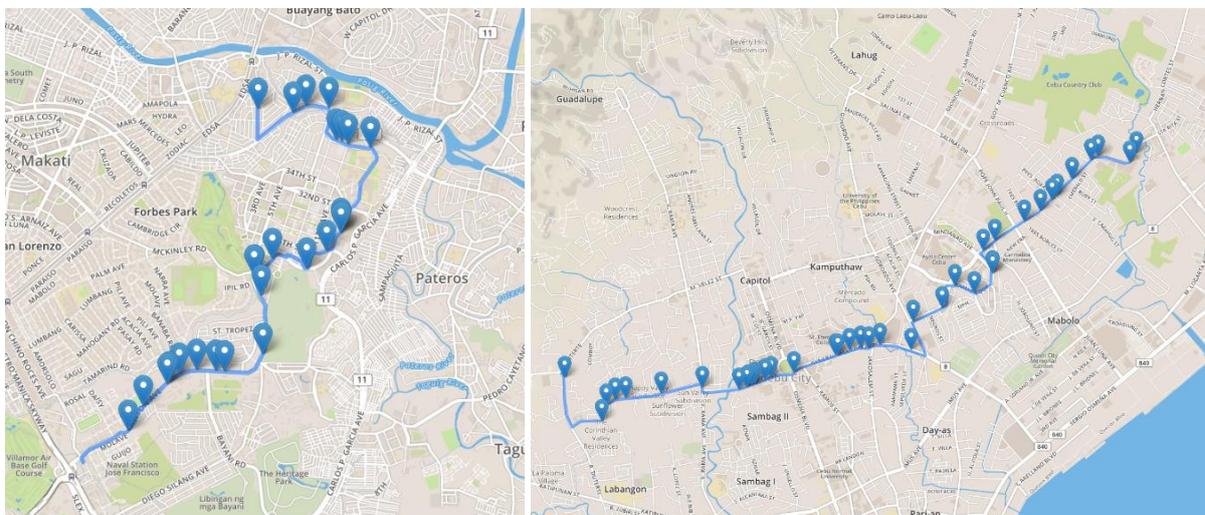
- Most **existing jeepney routes** feature a large number of operators, with a range of franchise expiry dates. Existing routes selected for the roll-out of early operations typically already feature a dominant operator, for example a cooperative. This facilitates the move from vehicle-based to route-based franchising; and
- New routes, also called **‘developmental routes’** have been identified to serve evolving traveller demand patterns, for example in areas of new development. Developmental routes do not have incumbent operators, and therefore are particularly practical for the move to route-based franchising.

Of the surveyed routes, the proportion of new and existing routes was broadly even.

No Typical Route

As with the traditional jeepney routes, the surveyed modern routes vary in characteristics. Route length ranges from 7 kilometres to 27 kilometres featuring some linear and some circuit (loop) routes. The average surveyed route length is 12.5 kilometres. Commercial operating speeds average 10 kilometres per hour in the peak period rising to 18 kilometres per hour in the off-peak, although observed peak speeds could fall as low as 5 kilometres per hour on certain routes.

Figure 15: Route alignment and stopping patterns on Gate 3-Guadalupe (NCR) and Banawa-Panag dai IT (Region 7). ITP (2019).



The varied route characteristics are reflected in the operational characteristic, including round trips achievable, daily operated kilometres, ridership and passenger journey length. A summary of the range of operational characteristics are presented in Table 3. Comparison is made with that of traditional jeepney routes, drawing on data collected for the Jeepney Market Transformation Programme Report (GIZ, 2015).

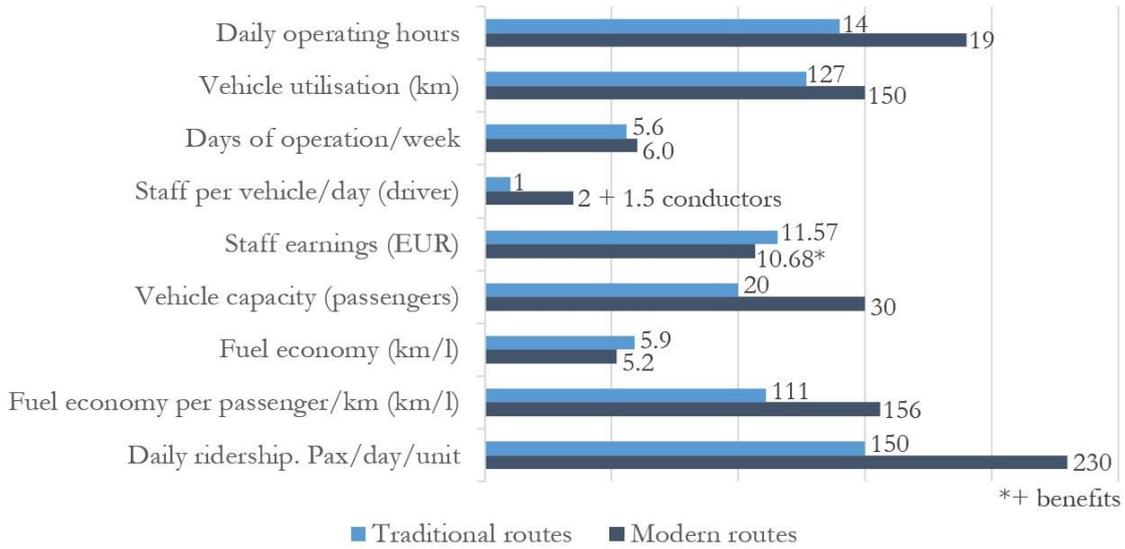
Table 3: Comparison of operational characteristics of traditional and modern jeepney

Average (range)		Traditional Routes	Modern Routes	Average % ch.
	Daily operating hours	14hrs (13-15hrs)	19 hours (11-22 hours)	+36%
	Vehicle utilisation	127km (60km-190km)	150km (80-220km Euro IV diesel) (80-120km E-Jeepney)	+18%
	Days of operation per week	5.6 days (5.5-6 days)	6 days	+7%
	Staff per vehicle/day	1 driver (1-2 drivers)	2 drivers, 1.5 conductors (1-2.5 drivers, 0-2.5 conductors)	+350%
	Daily staff earnings	650 PHP (11.57 EUR) (574-755 PHP – 10.21-13.44 EUR) (non-salaried)	600 PHP (10.68 EUR) + benefits (537 M/W-1,000+ PHP – 9.56-17.80+ EUR) (salaried)	~
	Vehicle capacity	20 seats (16-24 seats)	30 seats max. (22-24 seated)	+50%
	Fuel economy	5.9 km/l (4.2-7.8 km/l)	5.2 km/l (4.2-6.2 km/l)	-12%
	Fuel economy per passenger/km	111 km/l	156 km/l	+41%
	Daily ridership Pax./day/vehicle	300 (150-350)	460 (Euro IV Jeep 300-750) (E-Jeepney 200-250)	53%

Source: Table by authors (2019).

The comparison in operational characteristics of traditional and modern jeepney operations is summarised in Figure 17 below.

Figure 16: Comparison of operational features of traditional and modern jeepneys.
Source: Figure by authors.



Taking the operating conditions and commercial characteristics exhibited across all surveyed routes, and details of the additional vehicle and non-vehicle overheads, a typical cost breakdown of modern route operations has been established and is summarised in the Table 4 below.

Table 4: Modern jeepney vehicle’s operating costs/mth (PHP/EUR)

PHP (EUR)	Class 2 Diesel Jeep (AC)	Electric Jeepney
Vehicle purchase price	1,925,000 (34,470)	1,850,000 (33,127)
Interest and depreciation	19,838 (355)	19,065 (341)
In-vehicle staff costs	59,500 (1,065)	24,750 (443)
Fuel cost	30,288 (542)	7,500 (134)
Maintenance	5,625 (101)	6,625 (119)
Other vehicle overheads	6,520 (117)	6520 (117)
Non-vehicle overheads	10,000 (179)	10,000 (179)
Total	131,771 (2,360)	74,460 (1,333)
Operated km/year	45,000 km	30,000 km
Cost/km	35 (0.63)	30 (0.54)

Source: Table by authors (2019).

A Profitable Enterprise

A primary concern within the jeepney industry is the impact of the new investment and operating requirements on operator livelihoods. In order to establish the commercial viability of modern operations, the typical revenues and operating costs collected from the survey have been used to

evaluate the commercial viability over the life of the vehicle. The commercial viability of modern jeepney operations is assessed using standard measures of commercial performance. For comparison, the financial returns from investing in a traditional jeepney using micro-finance (a common route to vehicle ownership for jeepney drivers). This comparison is detailed in Table 5 below.

Table 5: Commercial performance of operations over fifteen-year period (PHP/EUR)

	Traditional Jeepney	Modern Jeepney	
Vehicle type	Jeepney + Franchise	Euro IV Diesel Jeepney	Electric Jeepney
Investment	350,000 PHP (6,200 EUR)	1,925,000 PHP (34,000 EUR)	1,850,000 PHP (32,750 EUR)
Financing source	Micro-Finance	DBP Finance	DBP Finance
Financial Internal Rate of Return (FIRR)	32%	55%	52%
Net present value @12%	629,000 PHP (11,100 EUR)	881,000 PHP (15,600 EUR)	1,167,000 PHP (20,600 EUR)

Source: Table by authors (2019).

4. Summary of Findings

Evaluation of the modern jeepney operators' experiences, and detailed analysis of the commercial operating data collected from the routes provides valuable insight into the 'real-world' performance of both the modern jeepneys and the reformed operating practices implemented under the 'PUV Modernization Program'.

4.1 Operating Practices

Increased Efficiency

Of the changes observed in operating practices of the modern route operators by comparison with traditional operations, the following important differences are to be flagged:

- Single operating entity responsible for operating each modernised jeepney route, enabling the sole operator to manage service levels on the route and reduce the adverse impacts of driving patterns associated with on-street competition;
- Collective operational and fleet management practices adopted, including vehicle headway management (if not yet operation to timetable) and collective vehicle procurement, sourcing of spares and maintenance; and
- Drivers, conductors and operating staff employed on a salaried basis with associated benefits, representing a fundamental shift from the daily driver income uncertainty associated with the boundary system.

The move from individual vehicle ownership to collective ownership facilitates the pooling of risk as well as resources and offers the opportunity to benefit from economies of scale in vehicle and parts procurement and maintenance.

Industry Players Ready for the Change

It should be noted that participating in the programme to date have principally been operators and commercial entities already demonstrating a level of consolidation and professionalisation. One example observed within the surveys was that of the tricycle cooperative incorporating a company to operate new jeepney remains. However the example remains in the minority, and the evaluation did not encounter examples of individual operators of traditional jeepneys forming a cooperative specifically to participate in the programme.

4.2 Commercial Performance of New Routes

Insight into the commercial performance of the new routes was collected both from operator feedback and independent observation. Detailed data collection on ridership and revenues and the costs of the new jeepney operations have enabled a good picture of commercial operating performance to be established.

The key findings of this analysis may be summarised as follows.

4.2.1 Operational costs

Some Pain, Much Gain

The cost of the modern jeepney vehicle significantly outstrips that of the traditional vehicles. The preferential financing arrangements minimise the upfront capital requirement but the repayment of the vehicle loan will extend seven years into operations. Surveyed operators report however the

advantages of operating a new vehicle, highlighting the enhanced reliability of the new vehicles by comparison with traditional jeepney which often incurred significant time off-the-road for maintenance.

Operators are observed to take full advantage of the new vehicles through increased operational intensity. The move to salaried drivers and conductors has facilitated a move to a two-shift operation. This increases the scale of employment per vehicle and enables greater vehicle utilisation. Whilst the wages offered for the on-vehicle position broadly reflect present industry standards, the staff now benefits from salaried status, with certainty of income and the associated wider social security benefits.

Fuel efficiency reported by the operators suggest that the improvement in fuel economy anticipated by comparison with the traditional jeepney has not materialised in real world operation. However, the increased vehicle capacity of thirty by comparison with a typical twenty-seat traditional jeepney, the fuel economy per passenger carried represents a great improvement. This will also be reflected in the environmental credentials of operations on the new route, with a reduction in carbon emissions per passenger by comparison with the old vehicles.

Additional operational costs not incurred under traditional operations include the monthly costs associated with the on-vehicle equipment.

4.2.2 Ridership and Revenues

Positive performance figures

Whilst ridership levels were observed to vary widely by route, the typical patronage per vehicle per day significantly exceeds that of the typical traditional jeepney.

This is driven largely by the two following key differences in modern operations:

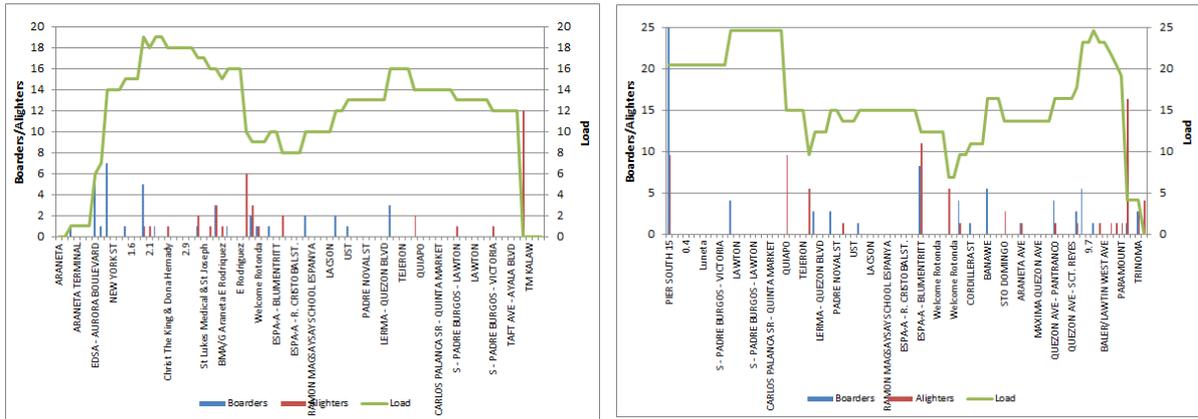
- Greater vehicle capacity of the modern jeepney,
- Increased intensity of operation.

Daily fare-box revenues were recorded to range from 2,500 PHP (44.49 EUR) to 7,500 PHP (133.47 EUR), influenced by the increased ridership and for air-conditioned vehicles, the benefit of a fare level 20% higher than for non A/C jeepney. Again, the typical revenues sit higher than the estimated average revenues collected by the traditional jeepney, due to the increased operating intensity and larger capacity.

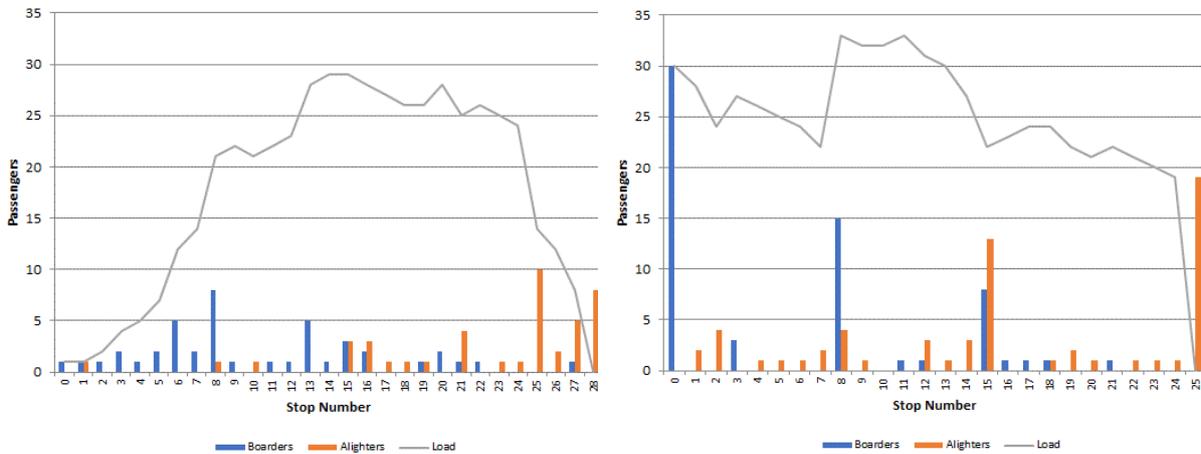
But some old habits remain...

Whilst the characteristics of the new vehicles and the management and structure of operations have evolved, some shared similarities with the traditional operating practices remain. The figures below show boarding and alighting activity and vehicle loadings recorded from on-vehicle surveys for typical traditional routes (data collected in 2015) and for the modern Jeepney routes. Higher loadings of the new vehicles are evident, but frequent stopping to allow the boarding of small numbers of passengers remains prevalent. The interviews found that whilst there is an aspiration to serve only formal stops, modern operators have not yet been able to eliminate the informal roadside pick-ups typical of traditional operations. Driver training may help in this regard, but the expectations of passengers, and their desire to board at any given point along the route which was cited as the primary factor preventing the cessation of the practice.

Figures 17 and 18: Boarding and alighting patterns on a traditional jeepney route. Source: ITP



Figures 19 and 20: Boarding and alighting patterns on a new jeepney route. Source: GIZ



4.2.3 Overall commercial performance

Opportunity for Enhanced Returns

The comparison of commercial performance is assessed from the perspective of the operator (i.e. the entity which owns the vehicles):

- The majority of operators report being pleased with the commercial performance achieved on the modernised routes, with many expressing a desire to expand operations and operate on further routes;
- Despite the increased daily operating costs of employing two shifts of on-vehicle staff and the additional overheads for the on-vehicle equipment such as the GPS and AFCS, and the non-vehicle overheads including operation of the depot, and management structure, almost all operators reported the ability to cover all costs including the vehicle repayment and turn a profit; and
- Returns over the lifetime of the vehicle are significant, with the rate of return on investment for both the Euro IV diesel jeepney and the electric jeepney exceeding 50% based on typical operational performance levels. This outstrips the returns expected for those who entered the market by purchasing a traditional jeepney with franchise using traditional credit lines.

Much of the return on the investment is realised over the longer term, in particular once the vehicle finance has been settled. This requires operators to take a longer-term view of investment returns rather than focusing on day-by-day profitability. This is likely to represent a significant change for the current small-scale traditional jeepney operator. However, taking a long-term view on investment returns will be familiar to corporations and should form part of the vision for the cooperatives who have formed to collectively operate the route.

4.3 Future Roll-Out and Challenges Ahead

Maintaining the Momentum

Challenges remain in the next phases of roll-out. As the number of developmental routes which may be identified diminishes, greater emphasis must be placed on the migration of traditional operations on existing routes. This will increasingly require industry consolidation of the existing franchise holders. With no early examples of this occurring within the informal operator end of the sector, this represents a risk to wider roll-out, both at the political and practical level.

Keeping the Funding Tap On

The scale of funding committed by the development banks, whilst a positive start, remains just a fraction of the overall vehicle financing requirement. For 2019, the Philippine Government had allocated sufficient funding to cover 80,000 PHP (1,423.66 EUR) per vehicle grants for a little over 14,000 new jeepney vehicles. However, the credit lines announced by the development banks, totalling 2.5 billion PHP is only sufficient to cover around 1,400 vehicles at the prevailing procurement prices. At the present rate of roll-out, it is possible that this lower target will not be reached.

Ultimately however, the scale of investment for the replacement of the c. 180,000 traditional jeepney vehicles stands at upwards of 300 billion PHP (445 million EUR). This is certain to extend beyond the credit lines offered of the two development banks involved currently, with private financing institutions likely to be needed to meet the financing requirements of the whole scheme. There is also a risk that as less professional operators are brought into the scheme, the risk of bad loans is likely to increase.

Overall however, early indications of scheme evaluation are very positive. The potential for operators to achieve commercial gains through modernisation, whilst providing an improved level of service provides an important message to the rest of the industry, that progress is not about threatening livelihoods but rather enabling the sector to progress, to remain relevant and commercially viable whilst meeting the ever evolving needs of the travelling public and wider society.

Bibliography

- GIZ. (2015). *Jeepney Market Transformation Program*. Professor Biona, J.B (De la Salle University, Philippines), on behalf of Deutsche Gesellschaft für Internationale Zusammenarbeit (unpublished).
- DOTr – Department of Transportation - Philippines (2017): Departmental Order 2017-11. Available at <http://ltfrb.gov.ph/wp-content/uploads/2017/11/DO-2017-011.pdf>
- DTI - Department of Trade and Industry, Philippines. (2017). *Public Utility Vehicle Class 2 and 3 - Dimensions*. Philippine National Standard 2126:2017
- LTFRB – Land Transportation Franchising and Regulatory Board - Philippines (2003): *Nationwide moratorium on the new acceptance of applications/petitions for the issuance of a certificate of public convenience, except truck for hire service*. Memorandum Circular No. 2003-028. Available at <http://ltfrb.gov.ph/wp-content/uploads/Memorandum%20Circular/2003/2003-028.pdf>

Annex 1: Table A.1

Table A.1 provides a list of the routes which had been identified as having received franchise and vehicles at the time of the data collection in summer of 2019. It should be noted that when surveyed, although operators were in place and had taken delivery of the initial allocation of vehicles, a number of routes had not commenced operation, either awaiting inauguration or other administrative milestone.

These operators were interviewed in any case, to collect information on the experience of participation in the scheme and of the vehicle procurement process. The planned routes were also mapped by GPS.

Table A.1: Surveyed routes and operator groups

Surveyed Routes	Operator	Operational at date of survey?
National Capital Region (NCR)		
1. Alabang-Zapote Loop	Great Power Moves Transport Corporation (via Star8)	Y
2. Bagumbayan-Pasig loop	Taguig Transport Service Cooperative	Y
3. Capitol Commons-Eastwood	Ecodyip Inc. (DyipKo)	Y
4. Lawton-PITX		Y
5. Filinvest Loop	Electric Vehicle Expansion Enterprises Inc.	Y
6. Gate 3-Guadalupe	Pateros-Fort Bonifacio Transport Service and Multi-purpose Cooperative	Y
7. Manila City Hall - QC City Hall loop	Pasang Masda	Y
8. MRT Buendia (Edsa)-Mandaluyong City Hall	Esakay Inc.	Y
9. PITX-Buendia loop	Senate Employees Transport Cooperative (SETSCO)	Y
10. PITX-Vito Cruz loop		Y
Region 3		
11. Apalit-Dau vv (via McArthur)	3 Big Boys Transport Service Corp.	N
12. Dau-Apalit vv (via NLEX)		N
13. Waltermart Paniqui-SM Tarlac vv	Paniqui-Gerona-Tarlac Transport Service Coop	N

Reforming the (semi-)informal minibus system in the Philippines

Surveyed Routes	Operator	Operational at date of survey?
Region 4A		
14. City Proper-Cotta-City Proper	Lucena City Transport Cooperative	N
15. Talao-talao - City Hall		N
16. Talao-talao - City Proper (desired route)		N
Region 6		
17. Iloilo City - Arevalo (Villa) loop	Iloilo City Alliance Operators and Driver Transportation Cooperative	N
18. Iloilo City - ITGSI (via CPU, 80% similar as Iloilo City-Jaro CPU) loop		N
19. ITGSI - Iloilo City (via diversion road) loop		N
20. Jaro Plaza - Mandurriao loop		N
Region 7		
21. Banawa - Panagda-it / Panagda-it - Banawa	Persano Corportation	Y
22. Cebu City Hall - IT Park loop		Y
23. Lapu-Lapu - Cordova Loop (Counter clockwise)	United Drivers and Operators Transport Cooperative/ UDOTCO Transport Service Inc.	N
24. Lapu-Lapu loop (Clockwise) / Lapu-Lapu loop (Counter Clockwise)		Y
Region 8		
25. New Bus Terminal - New Kawayan vv	SolarTech (via Star8)	Y
26. New Bus Terminal-Tagpuro vv		Y
27. Robinsons North - Robinsons Marasbarras vv		Y

Source: Table by authors (2019).

Annex 2: Table A.2

Operator Interview

Date _____

Operator Name _____

Modernized Route Name _____

Questions	
<p>Operator details</p> <p>Operator name</p> <p>Number of members (if co-op)</p> <p>Routes operated</p> <p>New vehicles owned</p> <p>Old vehicles owned (disaggregated by size if possible eg 14 seat, 18 seat etc)</p> <p>Has structure of operating group changed under PUV modernisation?</p>	
<p>Route characteristics</p> <p>Developmental or existing route?</p> <p>Official terminals?</p> <p>Formal bus stops?</p> <p>Total No. of vehicles operating on route (old and modern)</p> <p>Other routes sharing similar alignment (ie along same road?)</p> <p>Recent or planned changes to route (eg new terminal opening etc)</p>	
<p>New Vehicles</p> <p>Vehicle make and model (chassis and body)</p> <p>Imported or locally built?</p> <p>Vehicle capacity (standing/seating)</p> <p>Seat arrangements – standing seating</p> <p>Engine size</p> <p>Manual or automatic</p> <p>On board equipment (Automatic fare collection, GPS, information screen, radio etc)</p> <p>Interviewer-please take external and internal photos of vehicle</p>	

<p>Operational information</p> <p>Route operating hours</p> <p>Operating frequency</p> <p>Operating to timetable?</p> <p>Round trip time</p> <p>Number of round trips operated per day (or number of round trips per vehicle per day)</p> <p>Vehicle kms per vehicle per day or per week (if known)</p>	
<p>Number of employed staff</p> <p>On-vehicle</p> <ul style="list-style-type: none"> Drivers Conductors <p>Other salaried staff</p> <ul style="list-style-type: none"> Management staff Terminal staff Maintenance staff Other staff eg Admin <p>Other non-employed staff</p> <ul style="list-style-type: none"> Drivers on boundary 	
<p>Staff salaries</p> <ul style="list-style-type: none"> Drivers Conductors Terminal staff Maintenance staff Other salaries <p>Non-salaried staff</p> <ul style="list-style-type: none"> Boundary amount if drivers on boundary 	
<p>New Vehicle operating costs</p> <p>Fuel consumption (which ever available)</p> <ul style="list-style-type: none"> Fuel per vehicle per day or week or month Fuel consumption l/km <p>Lubricants</p> <ul style="list-style-type: none"> Per vehicle per week/month <p>Tyres</p> <ul style="list-style-type: none"> Cost per tyre Average lifetime of tyre (km) <p>Maintenance</p> <ul style="list-style-type: none"> Routine maintenance cost per month Non-routine maintenance costs (eg repairs) to date 	

<p>Insurance, licensing cost other tax or levies (per vehicle or for whole fleet)</p>	
<p>Old Vehicle operating costs</p> <p>Fuel consumption (which ever available)</p> <p> Fuel per vehicle per day or week or month</p> <p> Fuel consumption l/km</p> <p>Lubricants</p> <p> Per vehicle per week/month</p> <p>Tyres</p> <p> Cost per tyre</p> <p> Average lifetime of tyre (km)</p> <p>Maintenance</p> <p> Routine maintenance cost per month</p> <p> Non-routine maintenance costs (eg repairs) per annum</p> <p>Insurance, licensing cost other tax or levies (either per vehicle or for fleet)</p>	
<p>Passenger demand/revenue</p> <p>Total route demand</p> <p> On typical weekday</p> <p> On Saturday / Sunday</p> <p> In typical week</p> <p>Passengers carried per vehicle per day</p> <p> New vehicle</p> <p> Old vehicle</p> <p>Typical fare revenue per vehicle per day or week</p> <p> New vehicle</p> <p> Old vehicle</p>	
<p>New Vehicle costs/financing</p> <p>Purchase cost of new vehicle</p> <p>Including or excl. tax?</p> <p>Scrappage allowance received</p> <p>Other incentive or tax exemptions received</p> <p>Size of operator downpayment</p> <p>Vehicle finance</p> <p> Lender</p> <p> Financing terms (loan term, interest rate)</p> <p> Grace period</p> <p>Monthly repayment per vehicle</p> <p> In grace period</p> <p> After grace period</p>	

<p>Old Vehicle costs financing</p> <p>Typical purchase cost of old vehicle</p> <ul style="list-style-type: none"> With franchise Without franchise <p>Typical financing method?</p> <ul style="list-style-type: none"> Self financed Bank Micro-finance <p>Typical terms of finance on old vehicles</p> <ul style="list-style-type: none"> Lender Financing terms (loan term, interest rate) Grace period 	
<p>Operator experience of new route operations</p> <p>Experience of purchasing new vehicles</p> <ul style="list-style-type: none"> Choosing new vehicles Procurement of new vehicles (eg any supply issues) Manufacturer support eg maintenance contract <p>Access to finance</p> <ul style="list-style-type: none"> Ease of access to PUVM finance Opinion on financing terms <p>Early experience of operating new vehicles</p> <ul style="list-style-type: none"> Reliability Ease of driving Ease of maintaining Any other comments <p>Experience of commercial performance of new vehicles</p> <ul style="list-style-type: none"> Passenger numbers higher or lower Scale of revenues generated Vehicle operating costs <p>Changes to working practices</p> <ul style="list-style-type: none"> Salaried workers Operating to timetable? Using official stops only? <p>Response from other operators</p> <ul style="list-style-type: none"> Agression,colorum competition <p>Expectations and aspirations for the future</p> <ul style="list-style-type: none"> Purchase of new vehicles Operation on other routes Any other comments on PUVM 	

Annex 3: Table A.3

New Vehicle Inventory

Route Name _____

Operator Name _____

Make/Model of Vehicle _____
 (please complete separate form for each different vehicle model if fleet consists of more than one type of new vehicle)

Date of survey completion _____

Please log each new vehicle in fleet with date that the vehicle commenced active service and the current mileage/kms recorded from the vehicle odometer.

#	Vehicle Registration	Date vehicle put into service	Odometer reading (kms)
	Example: D1 B648	Eg 03 August 2018	Eg. 8,500 km
1			
2			
3			
4			

Continue on second sheet if necessary

Annex 4: Table A.4

Terminal Dispatch Survey

Route Name _____

Operator Name _____

Terminal Name _____

Date _____

Record every in-service vehicle departure /arrival at terminal

Vehicle Registration	Departure or Arrival (circle one)	Time HH:MM
Example: D1 B648	<input checked="" type="radio"/> D <input type="radio"/> A	06:05
	<input type="radio"/> D <input type="radio"/> A	
	<input type="radio"/> D <input type="radio"/> A	
	<input type="radio"/> D <input type="radio"/> A	

Continue on second sheet if necessary

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by:

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn

Friedrich-Ebert-Allee 36+40
53113 Bonn, Germany
T +49 61 96 79-0
F +49 61 96 79-11 15
E info@giz.de
I www.giz.de

Author/Responsible/Editor, etc.:

Robin Kaenzig
Dr. Christian Mettke
Patricia Mariano

Design/layout, etc.:

Franco Jauregui-Fung

Photo credits/sources:

GIZ

URL links:

This publication contains links to external websites. Responsibility for the content of the listed external sites always lies with their respective publishers. When the links to these sites were first posted, GIZ checked the third-party content to establish whether it could give rise to civil or criminal liability. However, the constant review of the links to external sites cannot reasonably be expected without concrete indication of a violation of rights. If GIZ itself becomes aware or is notified by a third party that an external site it has provided a link to gives rise to civil or criminal liability, it will remove the link to this site immediately. GIZ expressly dissociates itself from such content.

Maps:

The maps printed here are intended only for information purposes and in no way constitute recognition under international law of boundaries and territories. GIZ accepts no responsibility for these maps being entirely up to date, correct or complete. All liability for any damage, direct or indirect, resulting from their use is excluded.

Printing and distribution:

Printed on 100% recycled paper, certified to FSC standards.

Eschborn, 2019



Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ)
GmbH

Registered Offices
Bonn and Eschborn

Friedrich-Ebert-Allee 36+40
53113 Bonn, Germany

T +49 228 44 60-0
F +49 228 44 60-17 66

E info@giz.de
I www.giz.de