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Gender Mainstreaming in Rural Road Construction and Usage in Ethiopia: Impact and Implications

Final Report



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Cover Photo: Women in Kebele 028, Raya Kobo Woreda in Ethiopia's Amhara province, photographing a 'Bajaj' 3-wheeler motorised rickshaw, as part of a *Photo-Voice* workshop

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Abstract

This Completion Report documents the process, key findings, and recommendations of the project 'Gender Mainstreaming in Rural Road Construction and Usage in Ethiopia: Impact and Implications.' The project examined the differential experiences and benefits of rural road planning, road construction, transport, and mobility; for men, Women Spouses (WS), and Woman Heads of Household (WHH). Findings highlight that men exert a much greater influence on road planning, benefit the most from road development, and have much greater access to transport services. Between WS and WHH, the latter stand much disadvantaged due to their lower economic standing and greater time poverty.

Rural road development through the social protection, employment-guarantee scheme PSNP is effective in reaching out the benefits to women, through its gender mainstreaming provisions. The project recommends that more WHH-specific provisions will further enhance inclusion. Women can benefit immensely from skills-development; it will open up higher-paying skilled jobs to them. Women's mobility will be enhanced through better First-Mile connectivity, their travel experience will improve greatly by management of dust rising from unpaved roads. Most important is the need to proactively introduce Intermediate Means of Transport (IMTs) in rural areas, to fill the gap in rural transport services.

Key words

Feeder roads, PSNP, rural, Women Spouses, Women Heads of Households, Planning, Participation, Gender, IMTs, Construction

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Safe and sustainable transport for rural communities

AfCAP is a research programme, funded by UK Aid, with the aim of promoting safe and sustainable transport for rural communities in Africa. The AfCAP partnership supports knowledge sharing between participating countries in order to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources. The programme follows on from the AFCAP1 programme that ran from 2008 to 2014. AfCAP is brought together with the Asia Community Access Partnership (AsCAP) under the Research for Community Access Partnership (ReCAP), managed by Cardno Emerging Markets (UK) Ltd.

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Acronyms, Units and Currencies

\$ / USD	United States Dollar (US\$ 1.00 ≈ ETB 22.1)
£ / GBP	Pound Sterling (£ 1.00 ≈ ETB 27.6)
ADB	Asian Development Bank
AFCAP	Africa Community Access Partnership
ASCAP	Asia Community Access Partnership
ERA	Ethiopian Roads Authority
ETB	Ethiopian Birr (£ 1.00 ≈ ETB 27; US\$ 1.00 ≈ ETB 22)
FHH	Female-Headed Households
FGD	Focus-Group Discussion
GPS	Global positioning system
IMT	Intermediate Means of Transport
MHH	Male-Headed Households
MOU	Memorandum of Understanding
PWD	People with Disabilities
PSNP	Productive Safety Net Programme
RECAP	Research for Community Access Partnership
SSI	Semi-structured Interview
UK	United Kingdom (of Great Britain and Northern Ireland)
UKAid	United Kingdom Aid (Department for International Development, UK)
URRAP	Universal Rural Roads Access Program
WHH	Women Heads of Households
WS	Women Spouses

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1 Executive summary

This Completion Report documents the research project's process, key findings, recommendations, and plans for their further uptake. The research contributes to the understanding of women's participation in the road planning and development process in rural Ethiopia, and the benefits they derive out of it. Central to the research questions and design was the Productive Safety Net Programme (PSNP) - a rural social protection program that combines employment guarantee with public assets development—through which a bulk of the rural road development takes place. The project also captures women's mobility as a net effect of road infrastructure, transport services availability, and gender norms that limit women's ability to utilise them. Among women, it tried to capture the differences between Women Spouses (WS) and Women Heads of Household (WHH). The methodology uses a mix of methods; reflecting the multiple dimensions of gender, rural roads, and mobility. It includes interviews, focus group discussions, and participatory photography exercises with members of road-adjacent communities. Also carried out were interviews with key informants, review of existing literature, and consultations with key stakeholders from the gender, roads, and transport sectors. The research was based in two districts, one each in Tigray and Amhara regional states.

The results highlight that road infrastructure and transport services in rural Ethiopia are at a level from where their expansion will greatly benefit both men and women. However, men exert a distinctly greater influence on road planning, and benefit disproportionately more from the employment opportunities created in road development. Due to socio-economic norms related to gender relations, men also enjoy greater access to the available transport options. Exacerbating the gap with men is women's greater work burden, exclusive responsibilities such as child care, and a higher risk of personal safety while traveling. Nevertheless, women need to travel more frequently than men, and thus exhibit a stronger demand for more roads, upgrading of existing roads, and better transport services. Between WS and WHH, the latter tend to have a lower economic standing and a greater time poverty, and thus lag further behind on all counts. At the same time, PSNP's gender mainstreaming provisions have brought about slow but steady changes. They have slowly pushed women's concerns up the planning agenda. For example, a key criterion for approving request from a village for a rural road is whether that village is connected to the government-run maternal ambulance service. Besides, relaxed work targets and flexible working hours are enabling more and more women to participate in road works and earn a wage. Wheeled Intermediate Means of Transport (IMTs), that provide bulk of rural transport services in other countries, are scarce in Ethiopia. This increases costs and crowding; which further puts men at an advantage over WS and WHH (in that order). Thus, rural Ethiopia is an overwhelmingly walking country. This only exacerbates women's time poverty.

The results lend themselves to some recommendations to build upon what is working. Feeder road development through PSNP has been demonstrated to expand the rural road network while generating productive employment for men and women. Connectivity needs to be taken closer to the home, by improving the 'First Mile' connectivity- the path from the homestead to the nearest road. A case can be made for targeting WHH more, by introducing more WHH-specific mainstreaming provisions. Benefits accrued to women from the road development process can be increased through interventions to enhance their skill-base; and by supporting them to provide services (like catering) at road construction sites. Roadside tree planting can be implemented to create productive work for women, while addressing the problem of dust rising behind vehicles on unpaved roads and spreading over adjacent fields and homesteads. Finally, IMTs need to be tested and introduced in rural markets to fill the rural transport gap, which existing vehicles and services fail to do.

2 Background

This research project is a joint effort of Mekelle University and MetaMeta Research to address knowledge gaps in the understanding of Gender, Transport, and Mobility in Rural Ethiopia, specifically related to the development and use of low volume rural roads (LVRR) implemented under the Productive Safety Net Programme (PSNP) and Universal Rural Roads Access Program (URRAP). These low volume roads are characterised by having on average a daily traffic volume of 2-3 vehicles/day (BoCRT, 2016). The research also provides practical, actionable recommendations and solutions for gender mainstreaming in rural road and transport development, and identifies high-impact themes for further action and research.

The relevance of these topics is predicated on the fact that they were identified jointly with key stakeholders such as the regional bureaus of agriculture, rural development, road, and transport; and with the Ethiopian Roads Authority. This also boosts the prospects of uptake of these recommendations, solutions, and tools among these organisations.

As of February 2016, 39,000 km of low volume roads have been developed in Ethiopia under the PSNP. These roads are being built by both members of targeted households within the PSNP (under cash/food-for-work arrangements) and with community contributions. An estimated USD 200 million is spent annually under PSNP on LVRR. These small roads are inter-village roads, those connecting villages to smaller towns, or to main roads (also known as ‘feeder roads’). The Universal Rural Roads Access Programme provides LVRR with drainage infrastructure such as fords, bridges and culverts. Works implemented under URRAP rely on both paid community labour and skilled labour provided by URRAP itself.

The construction of these LVRR has several impacts on women in terms of employment (during construction and maintenance), business opportunities, mobility and access to services, as well as in terms of land lost or damaged due to road construction. Importantly, there are significant, well-recognised differentials between the nature and magnitude of these impacts on Women Heads of Household (WHH), Women Spouses (WS) in Male Headed Households (MHH), and men. To take these differentials into account, PSNP has provision to maximise employment opportunities such as quotas, equal wage guarantees, and flexible working hours for women; as well as provisions to maximise the participation of WHH and WS in decision-making and planning of the works. However, widely recognised gaps continue to exist between the provisions and implementation (MOFED, 2002).

Background data also shows that the development of a rural road network, though a necessary condition for rural transport services to expand, is not sufficient to improve access to transport, particularly for women. Rural Ethiopia continues to be an overwhelmingly walking world, i.e. 80% of trips are undertaken on foot. Motorised public transport accounts for 16% of all trips (Mekelle University and MetaMeta, 2016).

This project results contribute towards filling the knowledge gaps, as well as recommending suitable policy approaches and solutions, by working with rural communities and public/private stakeholders in the sector. It will contribute to ReCAP’s immediate focus on strengthening the evidence base around cost effective and reliable low-volume transport services for women in particular.

3 Research objective

This research sought to:

1. Improve upon the current understanding of the nature of engagement of women (in FHH and MHH) and men with PSNP; in the area of rural road development

2. Provide actionable recommendations, practical solutions, and tools for gender mainstreaming at the levels of planning and implementation of works, and in creating impact
3. Contribute to guidelines and policies on gender mainstreaming being prepared by government institutions in the road development/transport sector
4. Identify high-impact themes for further action and research, for gender mainstreaming in rural road development and transport

These objectives were arrived at through consultations with key stakeholders such as the regional bureaus of agriculture, rural development, road, and transport; and with the Ethiopian Roads Authority. These objectives have been largely achieved. Progress towards objectives related to dissemination and influence on policy is ongoing; it will span a longer timeframe than the duration of the project.

3.1 Research Questions

The research questions were categorised under three categories, corresponding to the three key aspects: planning of roadworks, implementation of road works, and transport services and mobility. They are presented along with corresponding results in Sections 6.2-6.4.

PSNP and Gender

(Planning of works)

- What are the gaps in the implementation of gender mainstreaming provisions of PSNP?
- What are the social, cultural, economic, administrative factors that limit the influence of women in decision-making?
- Among women, what are the differences between the involvement of WHH and WS in the decision-making? Are there differences between the levels of influence they exert? What accounts for those differences?
- What are WHH's and WS' priorities with respect to road development? Do they differ from each other? How do they differ from the larger community's priorities?
- In what ways do WS/WHH organise themselves? Can women's groups and organisations be leveraged to negotiate for WS/WHH priorities and interests?

PSNP and Gender

(Implementation of works)

- What is the level of participation by women in the implementation of road works?
- Are there differences between the nature and levels of participation of WHH and WS? What accounts for those differences?
- What kinds of labour do women provide during road works?
- What tools do women use for different types of road work activities?
- Are there road works activities that are deemed unsuitable for women? Why/ why not?
- How do labour conditions differ between men and women, and are wages comparable?

Gender, Transport and Mobility

- What are the most common reasons to travel, for men, WS, and WHH?
- What are the most common means of transport available?
- What are the most common issues faced in travel, for men, WS, and WHH?
- How do women's and men's travel/transport experiences differ from each other?
- How good is the first mile connectivity (residence to road)?
- What Intermediate Means of Transport (IMTs) are available in the region?
- How closely do available IMTs match the needs of men, WHH, and WS?

- What are the trends in the IMT sector? How are IMTs likely to evolve as a viable modal choice in rural Ethiopia, and for men and women?

4 Methodology

4.1 Data Collection and Analysis

The research methodology made use of a mix of qualitative and quantitative methods reflecting the multiple dimensions of gender, rural roads, and mobility. The core data came from:

1. Focus Group Discussions (FGDs)
2. Semi-Structured Interviews (SSIs)
3. 'Photo Voice' (participatory photography) tool (PV)
4. A survey of mobility patterns and access to rural transport, among WS, WHH, and men

Supplementing this core data was interviews with key informants, review of existing literature, data from secondary sources, as well as consultations with key stakeholders (government organisations whose mandate it is to design and implement PSNP, road development, gender, and transport policy and programmes). Finally, data from a past project investigating transport options and preferences among 529 households was disaggregated along gender (men and women) to draw insights relevant to the research questions. The original, disaggregated dataset was compiled under the project *Ethiopia: Feeder road development for inclusive productive employment*:

<https://www.nwo.nl/en/research-and-results/research-projects/i/98/12198.html>.

Table 2 summarises which research methods have been used to study the different research questions.

Field research was carried out between November 2016 and March 2017 among road-adjacent communities in Kilege Woreda (district) in Ethiopia's northern Tigray state, and Kobo Woreda in Amhara state lying south of Tigray. The sites for the interviews and focus group discussions were selected by a random transect selection along and away from selected road segments. A total of 181 women (including 64 WHH and 117 WS) and 163 men were reached through focus groups, semi-structured interviews, and Photo Voice exercise. In Amhara, 104 girls and women (including 40 WHH and 13 WS) and 124 men were interviewed in 8 settlements (named *Kushet* in Tigray and *Got* in Amhara), whereas in Tigray, the study drew upon 77 women (including 24 WHH and 45 WS) and 39 men respondents in 8 settlements. A cluster of settlements is named *Kebele* or *Tabia*. The list of visited settlements is provided in Table 1. The survey of mobility pattern and transport access was carried out among 195 respondents. Thus, the research draws upon a total of 539 members of road-adjacent communities as respondents.



Figure 1: Districts (Woredas) where research was carried out

Table 1: List of settlements visited for FGDs, SSIs, and PV

Region	Kebele	Settlement
Amhara (Raya Kobo Woreda)	Yatira Dibi	Dibi
	Gollesha	Tachsefer 06
	Amaya	Laysefer 042
		Amaya
	Ayub	Ayub 03
	Addis Kini	Buku 05
	028	Gedeba
022	Wereketu Mariam	
Tigray (KilteAwlaelo Woreda)	Adekesanded	Upper Laelay
		Gaunga
	Aynalem	Adworoma
		Gerdada
	Gemed	Gosenti
	Mesanu	Mesanu
Adi Ewal	Adi Ewal	
Adi Gudem	Adi Gudem	

To complement qualitative data collected through the methods described above, a quantitative survey was carried with 65 WHH, 65 WS, and 65 men in Kilte Awlaelo (Tigray) and Raya Kobo (Amhara). The data was collected by trained enumerators with close supervisions of the research team. Data was coded and fed into SPSS (version 20) and analysed using graphs and descriptive statistical tools such as minimum, maximum, mean and standard deviations.

Field research was planned and carried out in close conjunction with government departments in charge of gender, road, transport, and PSNP; for representative site selection and simultaneous validation of the data as it was collected.

Table 2 Research Methodology: Methods and Corresponding Research Questions/ Topics

	Semi-structured Interviews	Focus Group Discussions	Key Informant Interviews with implementing organisations	Photo - Voice	Validation and Consultative Workshops	Surveys	Gender-disaggregation of existing data
(1) Planning of Works							
Gaps in implementation of gender mainstreaming provisions		X		X	X		
Factors limiting WHH and WS participation in decision making	X	X	X		X		X
WHH and WS organisations: current role and scope for contribution to gender mainstreaming	X	X	X		X		
WHH and WS own priorities		X		X			
(2) Implementation of Works							
Current status of participation of WS and WHH	X	X	X		X		
Differences between participation and experiences of WHH and WS	X	X		X	X		
Tools being used	X	X			X		
Improved tools			X		X		
(3) Gender, Transport and Mobility							
Current travel options and patterns	X	X	X	X		x	
Time budgets of men, WHH, and WS	X	X		X		x	
Differences between transport experiences of men, WHH, and WS	X	X		X		x	
Socio-cultural norms regarding transport & mobility		X		X		x	
Gender-inclusiveness provisions in PSNP road works planning	X			X	X	x	
(4) Practical Tools, Recommendations and Solutions							
IMTs : status, potential, solutions	X				X	X	
Others	X	X			X		

4.2 Data Analysis

The quantitative data—collected through the field survey and gender-disaggregation of existing datasets—was analysed and visualised through Microsoft Excel and SPSS.

Qualitative data collected through focus group discussions and photo voice was coded and analysed with NVivo Pro. The software helped identify themes and topics that were recurring most frequently, and variation in their importance and interpretation across WS, WHH, and men.

Field research and data collection was carried out in three rounds: November 2016, January-February 2017, and March 2017. In between rounds were organised two workshops (Inception Workshop, held in November 2016; and Multi-Stakeholder Workshop, held in March 2017), which were also used to validate preliminary analysis of data collected until the previous rounds, with key stakeholders. This served to cross-check and enhance the rigour of the analysis.

4.3 Dissemination and Outreach

The dissemination and of the research results was carried out both online and offline, throughout the project period. Offline dissemination was done through workshops involving key stakeholders. The stakeholders included representatives from Amhara and Tigray regional governments’ bureaus of Agriculture and Rural Development (main implementing organisations of PSNP) and Bureaus of Road and Transport. Other stakeholders included representatives from Federal Integrated Infrastructure Development Coordinating Agency (FIIDCA), Ethiopian Roads Authority, Irrigation Development Authority, URRAP, and The World Bank. The workshops were also used to receive inputs from these organisations that helped informed research design and validate provisional results. For further details about the workshops, please refer to the Inception Report and the Mid-term Report.

The online dissemination was done through blogs, videos, and webinars that tried to distil and communicate key findings from the project to a wide audience (sector specialists as well as the general public). The website, newsletters and social networks of TheWaterChannel (www.thewaterchannel.tv).

Workshops

16-11-2017	Inception Workshop	Mekelle, Tigray
1-03-2017	Multi-Stakeholder Workshop (Tigray regional state stakeholders)	Mekelle, Tigray
10-03-2017	Multi-stakeholder Workshop (Amhara regional state stakeholders)	Bahir Dar, Amhara

Blogs

17/07/2017	‘Bajajs’: Filling the Mobility gap in Rural Ethiopia	http://www.thewaterchannel.tv/thewaterblog/500-bajajs-filling-the-mobility-gap-in-rural-ethiopia
23/03/2017	Getting a Stronger Rural Economy	http://www.thewaterchannel.tv/thewaterblog/452-getting-a-stronger-rural-economy
17/11/2016	Tesla Rickshaws	http://www.thewaterchannel.tv/thewaterblog/427-tesla-rickshaws

Videos

24/07/2017	Ethiopia: Roads, Dust, and Trees	http://www.thewaterchannel.tv/media-gallery/6419-ethiopia-rural-roads-and-dust
27/03/2017	Gender, Rural Roads, and Transport	http://www.thewaterchannel.tv/media-gallery/6420-gender-rural-roads-and-transport
21/10/2016	The two tracks of PSNP	http://www.thewaterchannel.tv/media-gallery/6373-the-two-tracks-of-ethiopia-s-productive-safety-net-program

Webinars

12/07/2017	Making Roads work for Water	https://www.irf.global/event/webinar-making-roads-work-for-water/
September 2017 (t.b.a.)	Gender and Roads	T.B.A.

The dissemination and outreach process will continue beyond the project period, through the videos and the blogs that will continue to be on TheWaterChannel and exposed to its visitors (70,000 per month), as well as through events related to Roads and Livelihoods- a theme under which MetaMeta and Mekelle University have several ongoing projects.

5 Review of key documents

A literature review was carried out during the inception period. It covered key research on gender, PSNP and rural transport in Ethiopia; as well as literature on gender, mobility and social protection based on research in other countries. The literature review helped refine some of the theoretical underpinnings of the research. For example, it helped articulate the idea of ‘mobility’ being a result of social, cultural, political, and economic factors and not just a function of availability of roads and transport options (Seddon, 2003). This helped re-frame research questions and themes that were first proposed in the project proposal.

Key ideas and concepts relevant to this research were identified, discussed at the inception workshop with key stakeholders, and introduced into the research design upon their validation (Mekelle University and MetaMeta, 2016). One such concept was that of Intermediate Means of Transport (IMTs) as a key component of rural mobility.

Review of literature and key documents was also carried out at later stages of the project. The process highlighted that while much data and literature exists related to PSNP and gender mainstreaming at a nation-wide level, regional/district-level information and analysis is scant. A key reference document was the Project Implementation Manual of the PSNP (MoA, 2014). It served as the reference point for ascertaining what are the exact gender mainstreaming provisions of the programme, which helped assess whether the level of their implementation on the ground was adequate.

5.1 Planning of Works

Women’s representation in public works-related decision-making structures is often inadequate to promote their voice (Dejardin, 1996). However, in PSNP programme design there is a marked recognition of the need to encourage women’s participation in the planning process. The Programme Implementation Manual asserts as much, and instructs implementers to ‘promote the participation of women as well as men in decision-making structures’ (MoA, 2014). However, inequality between men and women is deeply embedded in the culture (Erulkar, 2007) and this translates into women having limited influence on decision making despite their participation in significant numbers in planning meetings. Apart from cultural views on women’s participation in planning of public works, another factor that limits their participation is the relative time poverty of women as compared to

men. Women are overly taxed in terms of the time they have to spend on care work and domestic tasks (Harvey and Taylor, 2000), which affects their ability to budget time for attending such meetings.

Women's participation in the planning of works is significant not only from the point of view of their empowerment, but also because it is key to good planning. As mentioned earlier, the road works planning under the PSNP programme is as much a process of infrastructure development, as it is a source of generation of employment opportunities. When the decisions taken are not informed by women's concerns and interests, the employment opportunities created are biased towards men. The bias is in the form of favouring certain kinds of works involving hard physical labour where men have a distinct advantage, as well as choice of tools/techniques used (Holmes and Jones, 2011).

5.2 Employment in Road Construction

As in the planning process, PSNP has provisions built-in to support the ability of women to benefit from the employment opportunities that are created for them. These provisions are in the form of (Holmes and Jones, 2011):

- Explicit quotas for women, as well as Female-Headed Households
- Guarantee of equal wages as men
- Flexible working hours, to be able to balance domestic work and care responsibilities
- Provision of support for community childcare (crèches)

The provisions certainly boost the benefits accrued to women. A large number of women has been reached. Women represent 46% of the programme beneficiaries in Tigray regional state, and 37% in Amhara (World Bank, 2008). PSNP has helped increase household food consumption, and helped cover the cost of clothing, education, and healthcare (GoE, 2008). Incidents of distress sale of assets and premature harvesting of crops have also declined considerably (Holmes and Jones, 2011).

However, gaps remain at the level of implementation. Most notably, it is in the implementation of the guarantee of equal wage rates. In practice, women earn lower wages (Sharp et al, 2006). The greatest difference is in places that are close to urban areas where there are bigger labour markets with demand for male labour. As of 2008, the total PSNP expenditure on women remained much lower than that on men (World Bank, 2008). An aspect of gender mainstreaming which the current implementation framework fails to address are intra-household inequalities, as allocation of work and payments from PSNP are made at the household-level.

A key constraint to realising the provisions in the programme design is lack of awareness, both at the community-level and at the level of the field officers responsible for implementation, about the various gender mainstreaming provisions (GoE, 2008). Holmes and Jones (2011) also point out that while there is a rather large number of organisations forming the 'gender policy infrastructure' in Ethiopia, especially the 2008 Ethiopian Women's Package for Development and Change and the 2006 National Action Plan for Gender Equality, there was limited coordination between various programmes, and various sectors/organisations entrusted with implementing them.

Review of PSNP-related literature sheds light on the gendered perception of certain types of road works as being fit only for men (ploughing, concrete-work, masonry, operation of machinery), thereby limiting employment opportunities for women (Holmes and Jones, 2011). While a majority of the women respondents involved in the research agreed with such assertions, they also expressed willingness to learn some of the skills necessary to carry out such tasks if training was made available to them.

5.3 Gender, Rural Transport, and Mobility

Literature on gendered effects of, and access to, rural transport in the context of Ethiopia is rather limited. While considerable work has been done in the area of the effect of rural transport on livelihoods, gender-disaggregated data and analysis is scarce. However, an examination of the research done on the topic in other countries in Africa and Asia helps identify some themes that apply to a wide range of contexts.

Seasonality

Transport needs arise in response to social and economic activities which, in most rural societies such as Ethiopia, are seasonal in nature. Apart from the more obvious needs related to harvests, marketing of produce, and transport of agricultural inputs; a number of off-season activities are key to the mix of livelihood strategies that helps mitigate agrarian risk (Fernando and Porter, 2002). Importantly, the affordability of transport is also seasonal (Porter, 2002).

Safety

Safety is fast becoming a major issue in the transport sector globally. Over 70,000 people are killed and more than 10 million injured in road accidents annually. 70% of this toll is in the Global South (Global Road Safety Partnership, 2016), which means a significant burden on public and private health budgets. Safety issues arise from the quality of road infrastructure, as well as the safety standards of the vehicles that make up the transport system. From a gender perspective, the concept of road safety also takes on a wider meaning to include personal security (i.e. sexual harassment), and safety measures (i.e. street lights) to avoid hazards (Kwamusi, 2002).

Intermediate Means of Transport

IMTs are transport technologies that bridge the gap between walking and four-wheeled motorised transport such as cars and trucks. They include pack animals, animal carts, bicycles, rickshaws, motorcycles, three-wheeled scooters, etc. IMTs can often prove to be the difference between mobility and immobility in rural areas with road infrastructure. The global transport sector is therefore paying much attention to these intermediate modes of transport (Starkey, 2000).

Intermediate Means of Transport are conspicuous by their absence on rural Ethiopian roads. There is a marked difference between Ethiopia, other East African countries such as Tanzania, Rwanda, and Kenya (Starkey, 2016a) and Asian countries such as Bangladesh, for example (Matin et al, 2002) (TheWaterChannel, 2016). Mwankusye (2002) indicates that much effort is required in the promotion of IMTs through the mass media, demonstration projects, and community development initiatives for them to be really effective in improving rural accessibility.

5.4 Gaps in Literature

The reviewed literature failed to shed light on the following areas:

- 1) **Gender and Rural Transport in the Ethiopian Context:** With respect to Gender and Rural Transport, Fernando and Porter (2002) is a definitive source of insights and analytical concepts, for this project. Such analysis in the context of Ethiopia is sparse, which leaves many gaps in the understanding of how women experience rural transport: how gender norms shape their needs; what their priorities are; if they are different from men's; and so on.
- 2) **Intra-gender differences in the level of participation in road planning and road development, and in access to and experience of rural transport services:** PSNP has

strong gender mainstreaming provisions, and an M&E design which is results-oriented. While the program does recognise the additional vulnerabilities of Women Heads of Households (widows and the orphaned) and provide for mechanisms to extend them special support, it does not go so far as to articulate the specific differences between them and Women Spouses (MoA, 2014). The same is true for much of the literature on the gender dimension of social protection in Ethiopia. Literature on road and transport infrastructure discusses the WS-WHH difference even less.

- 3) **IMTs in rural Ethiopia:** While much work has been done on specific IMTs such as animals and animal-drawn vehicles (Starkey, 2001; Starkey and Kaumbutho (eds.), 2000) and motorcycles (Starkey, 2016a), this project did not come across much analysis placing IMTs as a component of the rural transport sector in Ethiopia as a whole.

The gaps in literature shaped the research questions as much as insights from existing literature. The research questions and corresponding results are presented in Section 6.

6 Results

6.1 Context: Rural Roads in Ethiopia

6.1.1 Rural Road Categories

Rural road development in Ethiopia takes place through following stages (ERA, 2010; PSNP Task Force, 2017):

In its first stage, a rural road is a **community road**, one that has evolved naturally over time with little or no engineering intervention (ERA, 2008). It is a logical route across the landscape that people use as a footpath and/or animal path to reach other villages, larger towns, or livestock markets. Community roads are constructed with voluntary labour mobilised and organised by the local leadership. These are low-quality paths not suited to motorised transport. Nevertheless, the occasional lorry or pick-up truck may pass through them.

In its second stage, a community road may be upgraded to a **feeder road**. Of course, there are also feeder roads constructed *ex novo*. A feeder road implies widening or levelling works and clearing vegetation. It may or may not include some basic drainage structures such as road-adjacent drainage ditches, and needs annual maintenance. In Ethiopia, feeder roads are usually constructed through the PSNP programme. Beneficiaries provide the required unskilled/semi-skilled labour, and are paid in terms of a combination of cash and kind (food) (World Bank, 2010).

An upgrade from a feeder road is what is referred to as a **URRAP road**, after the Universal Rural Road Access Program. URRAP roads are refurbished with masonry work, drainage facilities, and stream-crossing structures (e.g. bridges, fords, culverts). Masonry work requires skilled labour and offers higher wages. Usually, such labour is hired by the contractor from elsewhere, not necessarily from the road-adjacent communities. The unskilled labour required can be hired from among the PSNP beneficiaries. Upgrading of a feeder road under URRAP can thus be carried out in conjunction with the PSNP programme.

6.1.2 Rural Road Planning

The expansion or upgrading of a rural road network is usually requested by the Kebele (village cluster) administration to the Woreda. This process involves several meetings and discussions at different administrative levels, from the community level up to the Woreda, and back. It starts in small settlements (Kushets/Gots) where women and men discuss in separate sessions their key concerns and priorities related to development activities. If felt, the need for improving a community road is raised by Kushet representatives during General Assemblies at the Kebele level. Men and women representatives from the various settlements are on a 'Steering Committee' at the Kebele level. The issue is again raised and discussed in the 'Kebele Parliament' which meets every month. The Kebele Administration then presents the demand for a feeder road before the Woreda Road and Transport Office, which examines the request. If the request matches the Office's planning, priorities and budget, work on upgrading the road can start (PSNP Task Force, 2017).

Two key criteria guide the approval of a request for feeder road:

- Distance from Health Centre: Roads are key for ensuring maternal ambulance service to women, available during pregnancy and for safe delivery in the hospital. Request for a feeder road is accorded high priority if the Kebele is not yet connected with one to the nearest health centre.
- Market access to connect farmers to buyers: Connecting farmers in a Kebele to the nearest market is a priority second only to connecting the Kebele to the nearest health centre.

Once the Woreda Road and Transport Office approves the construction or upgrading of a feeder road, the administration appoints surveyors and road design expert to come up with a layout based on field surveys. The Kebele Administration negotiates the plan on behalf of the community and reports back on the decisions. Community-based suggestions are fine-tuned so that they are feasible also at a district level. For example, a road has to connect several villages/clusters of households, rather than each village having its own road (Sandford and Hobson, 2011).

The Land Administration Office (Woreda level) conducts an Impact Assessment to evaluate potential impact on the environment, forests, and on adjoining farms. An inclement effect on road-adjacent farmland is compensated for, in terms of farmland elsewhere. This compensation is administered at the point when land redistribution is carried out (redistributing land from those who have died/ have migrated) (PSNP Task Force, 2017).

6.2 Research Questions: Gender Mainstreaming in Rural Road Planning

Following are the research questions that the guided literature review, field research, and consultation workshops; with their corresponding results.

6.2.1 *What are the social, cultural, economic, administrative factors that limit the influence of women in decision-making?*

Gender Norms in Rural Ethiopia

In rural Ethiopia, as in other parts of sub-Saharan Africa, women's daily routine centre around chores such as water, fodder and firewood collection, cooking and food processing, as well as exclusive responsibilities such as child care. Findings from the field survey validate insights from literature review on gender roles in agricultural activities (Belay and Oljira, 2016), as well as intra-household allocation of time and resources between men and women (Arora and Rada, 2013). According to Ethiopia's Agricultural Research Organisation, as of 1997-98, women in Amhara, Tigray, and SNNPR provinces were contributing between 55-

58% of the labour going into crop production, and 77% of the labour needed for livestock production (EARO, 2000, quoted in World Bank, 2008). Overall, while the labour-burden on rural women exceeds that on men, much of women's contribution to household income is un-recognised, un-monetised or under-valued. This has implications for their share of the household income and their clout in decision-making.

FGDs and SSIs with over 181 women and 163 men highlighted that women are in charge of selling farm produce at the market (teff, barley, maize, chickpeas, vegetables and fruit if quantities are small, chicken, eggs, milk, butter, honey, firewood, cactus leaves) and buying household supplies and food items in return. Women also buy cereals when needed in smaller quantities. Men, on the other hand, are often in charge of buying more expensive items (clothes, shoes, medicines, farm equipment such as ploughs); buying and selling large animals (ox, sheep, goats, camels); and items that need to be purchased in large volumes (such as teff, sorghum, and chickpeas). This reflects and perpetuates men's standing in decision-making at the household level.

Women and girls have to bear the burden of collecting water and firewood for the household and going to the grinding mill. Often women and girls can spend up to 10 hours every day in tasks such as water collection. This undermines their health, educational and life chances. The research has also highlighted that due to the nature of the responsibilities assigned to women, their workload does not vary across seasons; they are busy the whole year round. Men, on the other hand, are busy around the harvest season (when they are involved in selling produce and buying inputs for the next crop) but less busy than women the rest of the year. As a result, they are also able more likely than women to participate in public meetings, engage in legal/administrative tasks, undergo trainings, utilise daily-wage employment opportunities, and engage in leisure activities.

Women's Influence in Roadworks Planning

Planning of roads—where to make community roads or which community roads to upgrade to feeder roads—is done through community meetings which is open to all community members. The decisions taken by the community are represented by community representatives who sit on various task forces that interact directly with government organisations in charge of approving and implementing PSNP activities including road works (more on these task forces in the following sections 6.2.2. and 6.2.3.). Following approval of request for a feeder road, the Kebele administration convenes again community meetings to plan labour contributions of each household and plan the work ahead.

These meetings are mostly attended by men. In Male-Headed Households, it is usually the husband who participates on behalf of his wife and the rest of the household. Women spouses and women heads of household are often just recipients of directions and are informed about the timing, location, and type of work to be done by the *edir*, the community leader. Women have thus little opportunity to negotiate a time of the day to start working on the road that would fit their daily household and childcare activities, despite PSNP guidelines stating that public works must be flexible to adapt to women's activities. As per the PSNP Project Implementation Manual (MoA, 2014), considering women's workload, their daily work quota should comprise of fewer hours and fewer units of work (e.g., length of road levelled, stretch of vegetation cleared). While this provision is being implemented more and more widely, in many instances women still end up contributing equally, being only exempt from hard physical work such as breaking of big rocks. Again, such decisions are usually made at community meetings where women are underrepresented.

The relatively low levels of women’s participation are illustrated in the results of a survey among 65 Women Heads of Household, 65 Women Spouses, and 65 Men Heads of Household, carried out by the research team in February-March 2017.

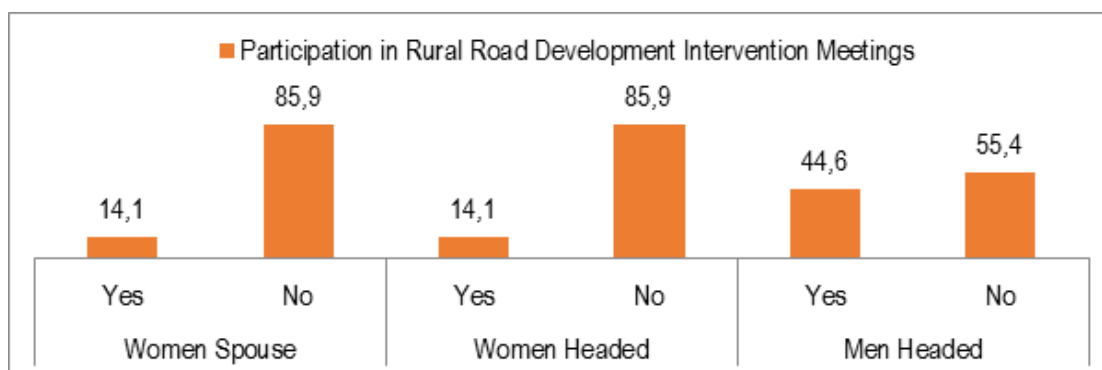


Figure 2: Responses to the Question: "Do you participate in Rural Road Planning Meetings?"

Differences between WS and WHH

Through Focus Group Discussions, it came to light that both WS and WHH exhibit low levels of participation in road planning meetings (as well as other community meetings). Socio-cultural norms related to women’s participation in decision-making apply to both groups. However, any difference in their levels of participation is determined by the interplay of two opposing pressures. On one hand, WHH experience greater time poverty, since they also must carry out tasks that men would in a household headed by a couple. This leaves them with less time to attend public meetings. On the other hand, WHH are the primary decisionmakers in their households. So, if they are willing to participate in discussions related to road planning, there is no one to dissuade them from doing so.

6.2.2 What are the gaps in the implementation of gender mainstreaming provisions of PSNP?

6.2.3 Among women, what are the differences between the involvement of WHH and WS in the decision-making? Are there differences between the levels of influence they exert? What accounts for those differences?

PSNP Provisions for Gender Mainstreaming in Planning of Works

Cognizant of women’s low level of participation in decision-making, PSNP has provisions to stipulate and incentivise more women to participate. The Gender Action Plan of its Programme Implementation Manual lays down as a priority the “...strengthening of the planning template to better capture gender issues.” To this end, the Action Plan proposes a number of measures such as holding separate consultation for women and men, if necessary; initiating experience sharing processes among women; taking affirmative action towards increasing women’s participation in committees and leadership positions; targeting women with awareness raising campaigns regarding different government programs; holding gender sensitisation trainings; and use gender disaggregated data to prioritise certain works in certain areas. Besides, there is a fair bit of emphasis on women’s capacity building through trainings, provided by Development Agents, the government-employed extension workers, in a range of technical areas such as financial management, employment, farming and irrigation, soil and water conservation, health and hygiene, childcare, peace and security, environmental issues, and gender mainstreaming provisions (MoA, 2014).

Importantly, these trainings underscore the importance of women’s participation in the

public sphere, in the eyes of men. A male respondent in an FGD reported that if a husband does not let his wife participate in a meeting, he is given a hard time by the authorities.

This policy, along with federal-level directives to achieve 50% representation of women in administrative bodies, guide efforts at the regional, Woreda, and the Kebele level to promote women's participation in the planning process. A participatory planning approach has been adopted by government agencies operating at different levels, over the 12 years of PSNP implementation (World Bank, 2010). The participatory planning approach seeks to engage communities to identify and prioritise public work needs through a Community Based Participatory Watershed Development approach. It is as part of this approach that the Kebele Food Security Task Force (KFSTF) and Community Food Security Task Force (CFSTF) discussed earlier are formed. The KFSTF and CFSTF mobilise the community and assess the capacity of each household to contribute in public works. They are also well-placed to identify vulnerable households who need direct support (MARD, 2009). The KFSTF comprises, among other members, of members of the Kebele administration, which represents various community-level women and men groups, and therefore the interests of their constituents.

Gaps in Implementation of Provisions

Gaps certainly remain in between the provisions and their implementation on the ground. Local administration bodies often struggle to achieve the targets for representation of women in task forces and committees. Men continue to dominate leadership positions, and their opinions are more likely to be taken into account than those of women (Jones, Tafere, and Woldehanna, 2010) (PSNP Task Force, 2017).

However, these gaps should be viewed in the context of the difficult nature of the objectives of the provisions, and the increasingly visible instances of incremental progress. For example, Adi Kesandet Kebele in Tigray regional state has been successful in reaching their target of women representatives in its various committees and task forces. In several villages, women feel that their participation has significantly contributed to livelihood improvements for the entire community. For instance, In Buku (Amhara), a remote settlement 5 km away from the nearest feeder road leading to Kobo town, women were able to bag two longstanding demand by participating in planning meetings and repeatedly airing their views: connection to the ambulance service through the development of a feeder road, and construction of wells in their own village to cut down the time they spent fetching water. At a more macro level, there is now a clear recognition of the need to connect villages with ambulance services for pregnant women, as a criterion for approving requests for building a feeder road. This is a result of continual efforts to encourage more and more WS and WHH to participate in the process of road infrastructure planning, and to air their views.

6.2.4 What are WHH's and WS' priorities with respect to road development? Do they differ from each other? How do they differ from the larger community's priorities?

As discussed in Section 6.2.1. women bear a disproportionately high share of workload, which does not ease off in any period during the year. Part of this is that women travel more frequently than men throughout the year. Besides, the financial burden of travel on women is disproportionately high (see Table 3). Women often have to travel with babies and toddlers, which can incur extra fares and additional time. Additionally, bus operators often raise fares arbitrarily depending on the number of passengers, and women are less inclined to haggle over the price. Thus, they bear the brunt- physically and financially- when road connectivity is inadequate and when road quality is bad. Therefore, there is a stronger

demand for work on road infrastructure (feeder roads and tarmac roads) among women compared to men. Men’s demand for roads, on the other hand, is tempered by a greater concern for potential loss of land resulting from new road construction. This is evidenced by women’s and men’s responses in FGDs and SSIs, and was validated by key officials from organisations that for the PSNP Task Force (Kilte Awlaleo Woreda), a body in charge of receiving requests for rural road development and coordinating the process through PSNP.

Table 3 Average Cost of Transport, By Purpose

Purpose of Trip	Average Cost of Transport (ETB)	
	Male-Headed Households	Female-Headed Households
Economic Purpose	86	70,5
Social Services Purpose	28,5	39,7
Community Association	1,1	0,6
Social Activities	28,3	29,4

With respect to the effects and outcomes of road development, women’s key priorities are as follows:

- 1) **Ambulance Service:** The foremost reason why women value feeder roads is that it helps them connect to the government-run ambulance service that can take them to the nearest health centre (usually the nearest town) during pregnancy. That women accord the ambulance service a high priority is based on analysis of inputs by women and men in FGDs. It is notable that men too recognised the ambulance as the most important service provided by roads to women in a separate FGD. Most importantly, authorities such as the Woreda Road and Transport Office recognise this and prioritise Kebeles not yet connected to the ambulance service when it comes to approving requests for feeder road development (PSNP Task Force, 2017).
- 2) **Good Roads:** Women want ‘good’ feeder roads. Through Photo Voice exercises, they expressed that ‘good’ meant:
 - a. **Free of stones:** Rock outcrops and stones make roads difficult to walk on, especially during the rainy season. During pregnancy, this even becomes dangerous.



Figure 3 *“Forget the (feeder) road. The walkway to it from our homes is so difficult. Pregnant women will have to think many times before using it.”* Picture taken by women in Aynalem village, November 2016



Figure 4 *“This stretch of road is very difficult to walk through, especially during the rainy season. We took this picture because we think this should be converted into a bridge.”* Picture taken by women in Werema Kushet, Kilte Awlaelo Woreda, March 2017

- b. Flat:** In both northern Amhara and southern Tigray regions where the research was carried out, much of the terrain is hilly. Many rural roads are therefore built on a slope. Because they usually have to carry freight to and from the market, women prefer to walk on flatter routes even if they are a bit longer. On the contrary, men and boys who walk with the livestock often for several hours to reach the livestock market, fancy any shortcut, no matter the gradient. To an extent, feeder roads can be engineered in a way to ease out the gradient of the slope to facilitate women mobility. Women participants in a Photo Voice exercise in Kebele 28, Kobo Woreda, pointed out that slope can often be a big factor. They took and presented pictures of a longer road to a neighbouring village market that they prefer over a steeper community road.



Figure 5: A stretch of feeder road in Kebele 28, Kobo Woreda. Women prefer to walk this road to a nearby village market (Goisom), rather than a Community Road (below) which is shorter but more steep



- c. **Wide:** When a number of people are walking on a road with livestock, a wide road enables groups to overtake and cross each other side-by-side, preventing congestion. Besides, women said they felt safer walking on wider roads when vehicles pass by.



Figure 6: "This is a narrow stretch of the feeder road. When a vehicle passes, we have to cross over and press against the hill side." Picture taken by Photo Voice participants from Gedeba village, about 10 km from Wukro town along a feeder road (picture below)





Figure 7: A stretch of road described as "wide, good" by Photo Voice participants

- d. **Tarmacked roads:** For all the demand women have for feeder roads, the best-case scenario for them is their community/feeder road being tarmacked. They believe that this will bring motorised transport closer to their doorsteps. This belief is validated by the transport operators' stated reasons for not plying on rural roads, i.e. unsatisfactory road-conditions. Another key reason women want tarmacked roads is the problem of dust rising around passing vehicles. This is a health hazard that affects those walking on the feeder roads, as well as those living adjacent to roads. (Further details in Section 6.4.7)

While both women and men and the entire community at large would benefit from flatter, wider, less rocky roads, in the FGDs it was mostly women who described 'a good road' as having these particular characteristics. Men respondents described a good road as being tarmacked in the best-case scenario. For feeder roads, they considered it important to have masonry structures such as bridges and fords.

- 3) **Employment Opportunities and Choice of Work:** Across the different locations where the research was carried out, women also value roads for the productive employment opportunities they offer, in construction and periodic maintenance. When women are not involved in decision-making related to road construction, the process can get biased towards men. The bias is in the form of favouring certain kinds of works involving hard physical labour where men have a distinct advantage, as well as choice of tools/techniques used (Holmes and Jones, 2011). In the FGDs, while expressing the wish for concrete roads, women did not fail to appreciate feeder roads for the employment opportunities created in their annual maintenance work.

These findings demonstrate that (a) WHH and WS have some specific needs and demands road development and usage, and (b) that they demonstrate a strong willingness to engage in the road planning and road development process. Thus, they strengthen the argument for

making concerted efforts towards gender mainstreaming in rural road construction and greater engagement of women in road planning.

No significant points of divergence could be identified between WS and WHH responses priorities with respect to road quality and nature of the road development process.

6.2.5 In what ways do WS/WHH organise themselves? Can women's groups and organisations be leveraged to negotiate for WS/ WHH priorities and interests?

At the community (settlement, or 'Kushet'- level), women often organise themselves into groups called 'Selam.' Members of these groups meet every month to discuss wide-ranging issues of common interest, such as household management, childcare, health, farm management, marketing of produce, etc. These groups often serve to cultivate and identify leaders, who go on to be nominated into planning bodies like steering committees and taskforces at Kushet and Woreda levels (PSNP Task Force, 2017). Women value these groups, as much as elements of a larger system of planning and decision-making; as forums to convene, bond and share with peers. This true for both WHH and WS.

Thus, these groups already serve as fora for women to discuss and identify priorities and interests. However, there is much scope to leverage them to further women's priorities' and interests. A start can be made by a greater, systematic recognition of these groups as potential partners in implementation of interventions- by governmental as well as non-governmental bodies. As discussed in more detail in Section 6.4, these groups can also be collaborated with to implement Skills-development interventions, so that women can take up higher-skilled, higher-paying jobs, including those available in roads development.

6.3 Community Participation in Road Works

6.3.1 What is the level of participation by women in the implementation of road works?

6.3.2 Are there differences between the nature and levels of participation of WHH and WS? What accounts for those differences?

PSNP Provisions: Gender Mainstreaming in Implementation of Works

A wide range of provisions are embedded in the PSNP program design to facilitate the participation of women in the construction and maintenance of feeder roads. The provisions aim to take into account women's relative time poverty and socio-cultural norms regarding their suitability to different kinds of physical labour (Mekelle University and MetaMeta, 2016; MoA, 2014).

Field research carried out under this project underscores that the level of implementation of these provisions highly across various regions, woredas, and kebeles. Analysis of responses of men and women participants in FGDs and SSIs, as well as interviews with key informants involved in the implementation of the program reveals that some of the most widely implemented provisions include:

- **Lower obligations for Female Heads of Household to provide labour towards PSNP:** In terms of work obligations, every household member is allocated five days of work per month, which, in case of a household of 5 for example, totals 25 days of work per month per household. It is the responsibility of the household head (and the spouse if there is one) to provide this allocated amount of labour to the PSNP work.

Within the male headed household, the male head and his spouse would have to provide 15 and 10 days' labour respectively. Male heads of household who are single, have to provide 15 days of labour while female heads of household have to work for only 10 days.

- **Lower daily work targets for WS and WHH**, compared to men (in terms of meters of road to accomplish in a day)
- **Paid maternity leave of up to 17 months from PSNP targets and obligations:** According to the PSNP implementation manual, women have right to nine months maternity leave (since the sixth month of pregnancy until the sixth month age of the baby). In practice, women take leave starting the fourth month of pregnancy and take one year off after the birth. These additional eight months have been negotiated by women in several villages and granted by PSNP implementers. If the woman is married, the husband has to take over her work obligations for the additional eight months.
- **Exemption of women from hard physical work**
- **Exemption of elderly, sick, and People with Disabilities from PSNP activities** Among the Gender mainstreaming provisions whose implementation is highly variable across Kebeles, Woredas, and Regional States, the most prominent ones include provision of child care and flexible working hours for women (Andrews & Kryeziu 2013). Crèches are organised under canopies where elderly, pregnant and other beneficiaries of the PSNP exempted from physical work look after the children. Among 14 villages where information was sought about the presence of a crèche near by the worksite, only three reported to have one, with implementation rates in Tigray regional state found to be higher than in Amhara.

Levels of Participation of Women

Hard data on the level of participation of women (for example number of person days worked in PSNP compared to men) is scarce. Even though PSNP has a strong M&E design which is results-oriented, the program lacks the capacity to collect the required information (Subbarao et al, 2013). Interviews and FGDs with WS, WHH, men and key informants have established that there is a strong demand among women for roads and for employment opportunities in roads planning and development (See Section 6.2.4); despite their relative time poverty and socio-cultural norms. Given that, it can be concluded that the key limiting factor for women's participation is the employment opportunities created for them. In other words, women participate in road development as much as the opportunities allow them.

A dimension along which the current level of women's participation can be appraised is the impact on women. Women who participated in FGDs and SSIs reported that the net effect of PSNP has been an improvement in their economic security and enhancement in their social standing and respect. This is validated by findings of several systematic appraisals of PSNP (World Bank, 2010; Combaz, 2013; Holmes and Jones, 2011) and interviews carried out within this research with PSNP implementing organisations (Wout Soer, 2016). This leads to the conclusion that levels of participation of women in PSNP are significant enough to have brought about these noticeable impacts.

Women Spouses and Women Heads of Household

According to the PSNP Project Implementation Manual, the daily wage rate is around 20 ETB (paid as cash and food grains), subject to annual review on the basis of changes in market

wage rate for similar or comparable unskilled labour, the availability of individuals to undertake their co-responsibilities, and market prices of basic food commodities. (MoA, 2014). Considering the economic profile of the average Tigrinia and Amharinia rural household (or for that matter an average Ethiopian rural household) (CESS and World Bank, 2013) which qualifies for inclusion in the PSNP program, this is a significant amount of money. In reality, wages offered can be much lower. Nevertheless, it is still high enough for most WS and WHH to be keen to participate in PSNP, despite the significant differences in their socio-economic conditions.

While the willingness to participate in PSNP is shared by both WS and WHH, WHH's capacity to participate in the program is hampered by their relative time poverty. It is here that PSNP's gender mainstreaming provisions, especially limiting the work quota of WHH to half the number of their family members, play a crucial role in facilitating their participation and ensuring that they benefit from it.

6.3.3 How do labour conditions differ between men and women, and are wages comparable?

6.3.4 What kinds of labour do women provide during road works?

6.3.5 Are there road works activities that are deemed unsuitable for women? Why/ why not?

As discussed earlier, there are socio-cultural norms that view works as being suitable or unsuitable for women. For example, ploughing is still viewed as a male prerogative (Mulema and Dantew, 2013). Besides, there are some real practical and biological constraints limiting women's participation in certain works.

Women's Involvement in PSNP and URRAP Roads

As discussed before, feeder roads in rural Ethiopia are constructed under the PSNP. Roads of a higher grade—with masonry work and cross- drainage facilities—are constructed under the URRAP program. URRAP roads involve a higher degree of technicality and mechanisation. About 70% of the labour required is unskilled, and sourced from the road-adjacent community. Anybody can participate in URRAP work as long as they have completed their PSNP obligations. The remaining 30% is skilled labour contracted from elsewhere. The wage offered to skilled labourers (ETB 200) is about three times that of unskilled labourers (ETB 50-60). Roadworks under URRAP are divided quite neatly along gender lines. Women who manage to get hired are mainly tasked with fetching water for the preparation of concrete mixture, carrying cement bags, mixing of construction materials, and watering cement structures. Men, on the other hand, do the levelling, digging, carrying and breaking rocks and stones.

In PSNP, the division of works along gender lines is less stark. Nevertheless, the PSNP Project Implementation Manual identifies the need to allocate works to women that are 'light' (physically) and 'flexible' (taking into account their time poverty and their need to arrive late and leave early). Overall, its guideline to the planning process is to reduce women's workload by 50% (MoA, 2014).

Through FGDs, it was found that some of the jobs considered 'light' and 'flexible' included carrying of stones, digging of pits/trenches, levelling of surfaces, and breaking of smaller rocks. Men break the bigger rocks, and almost exclusively carry out skilled jobs such as masonry. Masonry work is not always needed in feeder road development; it is needed

when feeder roads are upgraded under the URRAP program with bridges and fords. Masonry is not particularly labour-intensive; it requires skills and training. It is more rewarding than



Figure 8: Carrying stones (above) and digging pits/ trenches (below), examples of jobs considered suited to women



unskilled jobs, with wages thrice as high (ETB 200, as compared to ETB 60). However, it is viewed almost unanimously as a male job. Across FGDs and SSIs, when women and men were asked whether women could learn masonry skills and earn a higher wage, the first responses were always in the negative. “It is not our tradition,” “It is not part of our/their skill” were some of the reasons put forth. However, as the discussion progressed, women would go on to opine that masonry was something they could do if provided with proper training. “I have never seen a woman with building or construction skills, it is not part of our culture, so I never tried to learn myself. But if there were training opportunities I would like to learn,” said a women respondent at an FGD in Buku, Amhara.

Wage Differentials

PSNP lays down the same wage rate for same work, regardless of gender (MoA, 2014). FGDs and SSIs establish as much; none of the more than 400 respondents recounted any instance

of women being paid less for the same work. If anything, the wage rate could be said to be favouring women given their lower daily targets (for example, metres of road levelled, length of stretch cleared of vegetation, etc.).

However, as discussed earlier, there are gendered perceptions of most skilled and physically-intensive jobs being exclusive purviews of men. Since such jobs are usually higher-paying, women's exclusion from them effectively creates a wage differential. As discussed earlier, skills like masonry can be imparted to women through training. As discussed later in the report, certain tools can reduce the physical effort needed for certain jobs and thus draw women in.

Collateral employment opportunities around construction sites

Apart from direct employment in road construction, economic opportunities arise in various forms around the construction site. The feeder road connecting Aynalem Tabia to Wukro town was constructed in 2005, before PSNP became operational. The construction was led by a private contractor. With no PSNP and no obligations to employ women, the contractor hired mostly men. Many women, however, were able to make money by selling coffee, snacks, and lunch to the workers (MetaMeta, 2016-17). Even today, at PSNP sites, women can be seen selling *talla* (local sorghum-based beer) to labourers.

These opportunities are created by women out of their ingenuity. However, if catering at construction sites is formally recognised by PSNP authorities as an income source, and women caterers are extended support and recognition like child-carers, a larger number of women would be able to utilise such opportunities. This will serve well the larger objective to create productive employment for women.

6.3.6 What tools do women use for different types of road work activities?

The tools most commonly used in feeder road construction are the shovel (*arafa*), the hoe (*duma*), and improvised levellers. One of the complaints of participants was that while tools used to be provided through PSNP, of late program participants are being asked more and more to bring their own tools.

FGD and PI respondents expressed satisfaction with the limited array of available tools. Women show a slight preference for the shovel over the hoe, as it does not require them to bend their backs.

Tools, however, emerged as an important point of gender mainstreaming intervention, in discussions between various stakeholders at the Inception Workshop (November 2016) and Validation Workshop (March 2017), organised as part of the project. Stakeholders discussed modified tools that reduce efforts, which are being tried out in different parts of Ethiopia. Examples include the *scythe* (a common tool in western countries but never introduced in Africa) and the *Tree Puller* (developed in India and being tried out in southern Ethiopia). Both these tools are relatively simple and can enable women to clear vegetation—cut bushes and uproot plants/small trees—works that require much effort and are therefore reserved for men. This research identifies Improved Tools as an important means to open up new works for women and expand their participation in development of roads/ other assets.



Figure 9: The Scythe (left) and the Tree Puller (right) being discussed by Stakeholders at Validation Workshop in March 2017



Figure 10: Tree Puller being field-tested in Gambella, Southern Ethiopia

6.4 Gender, Transport, Mobility

6.4.1 *What are the most common reasons to travel, for men, WS, and WHH?*

During FGDs, women indicated the following as their main purposes of travel, in order of priority and frequency:

1. Fetching Water and firewood
2. Going to the market- to buy daily supplies and to sell produce
3. Going to the grinding mill to get grain ground
4. Medical Treatment: during illnesses, for pregnancy-related check-ups, and for child delivery
5. Visiting relatives and other social obligations:

Men indicated the following as the main purposes for the travelling:

1. To buy household supplies
2. To offer their labour for seasonal/daily employment: usually to the nearest town
3. Attending public meetings/celebrations

4. Visiting relatives and other social obligations
5. Availing services such as banking
6. Medical Treatment
7. Buying construction material

It is notable that some tasks like fetching water and firewood are considered exclusive purviews of women. Also, while both women and men go to the market to buy supplies and sell produce, the responsibilities are divided. Women are usually in charge of selling farm produce of smaller-quantities, such as teff, barley, maize, chickpeas, vegetables, chicken, eggs, milk, butter, honey, firewood, and cactus leaves. Men are usually in charge of selling large-volume produce, large animals among livestock (ox, sheep, goats, and camels), and farming equipment (such as ploughs). When it comes to purchases, women, again, are assigned low-value, low-volume items such as household supplies. Men make the more expensive purchases such as clothes, shoes, and medicines. Such assignment of roles is a social construct of what is masculine and what is feminine. However, this determines who controls bulk of the financial resources within the household and means of production; and therefore has very real consequences.

Further, data collected under the ‘Feeder Road Development for Inclusive Productive Employment’ project (2014-16) was disaggregated between Male and Female-headed households which brought forth the average distance travelled by the two for the various purposes.

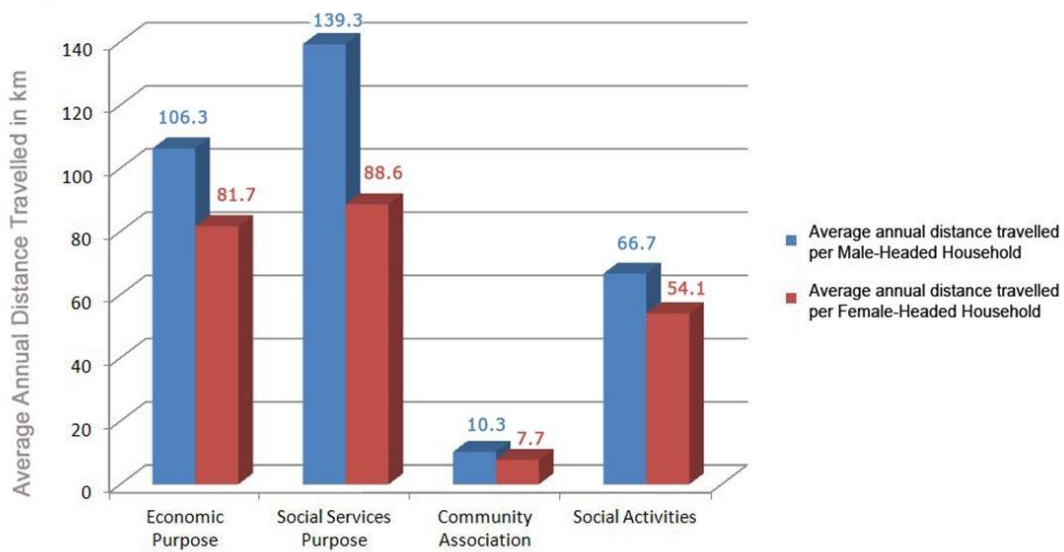


Figure 11: Distance travelled, by purpose, by Male and Female Headed Household members

The data shows that the dominant purpose of travel is social services (mainly education and health), closely followed by access to markets, for agricultural activities, and for employment. Female-Headed Household members make shorter, fewer trips in comparison to Male-Headed Household members who are arguably more mobile.

- 6.4.2 *What are the most common motorised means of transport available?*
- 6.4.3 *What Intermediate Means of Transport (IMTs) are available in the region?*
- 6.4.4 *How closely do available IMTs match the needs of men, WHH, and WS?*
- 6.4.5 *What are the trends in the IMT sector? How are IMTs likely to evolve as a viable modal choice in rural Ethiopia, and for men and women?*

The data on modal split also shows that rural Ethiopia continues to be an overwhelmingly walking world, i.e. 80% of trips are undertaken on foot. Motorised public transport accounts for 16% of all trips.

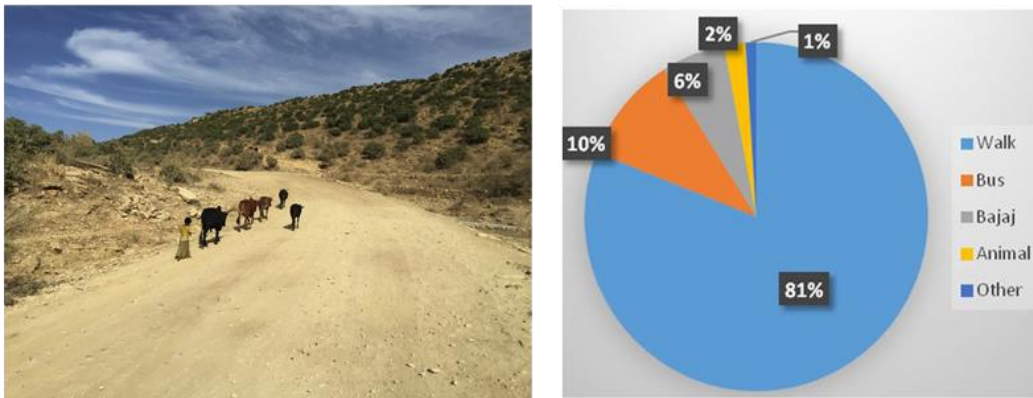


Figure 12: Modal Split for All Trips (right) shows that rural roads are mostly used for walking (left), sometimes along with livestock and with donkeys that can carry cargo

The reason such an overwhelmingly large percentage of trips is undertaken on foot is the lack of affordable motorised transport options available to people when they need them. Focus Group Discussions among various road-adjacent communities across Tigray and Amhara regional states highlighted a common situation communities face all across: mini and midi buses that provide regular bus services within and between urban centres, operate on low volume rural routes only on market days when there is a high demand. On other days, people can either walk or call a 'Bajaj' (motorised three-wheeler rickshaws). This implies an overall scarcity, a gap between the need for motorised transport and availability of options.



Figure 13: Clockwise from top left: Midi-bus, Mini-bus, and 'Bajaj' three-wheeler, the 3 main motorised transport options available in rural areas

Thus, transport operators are in a position of strong bargaining power because of which fares are rather high, as per the perception of affordability (195 men, Women Spouses, and Women Heads of Household reported that on average fares a twice as high as what they are capable of paying, see Figure 14). Fares are also highly variable, with bus operators raising and lowering prices as they deem fit. On average, fares for the inward and return journey between the village and the nearest urban centre could vary by 11 ETB on market days. Thus, a number of people often choose to walk even when motorised transport is available.

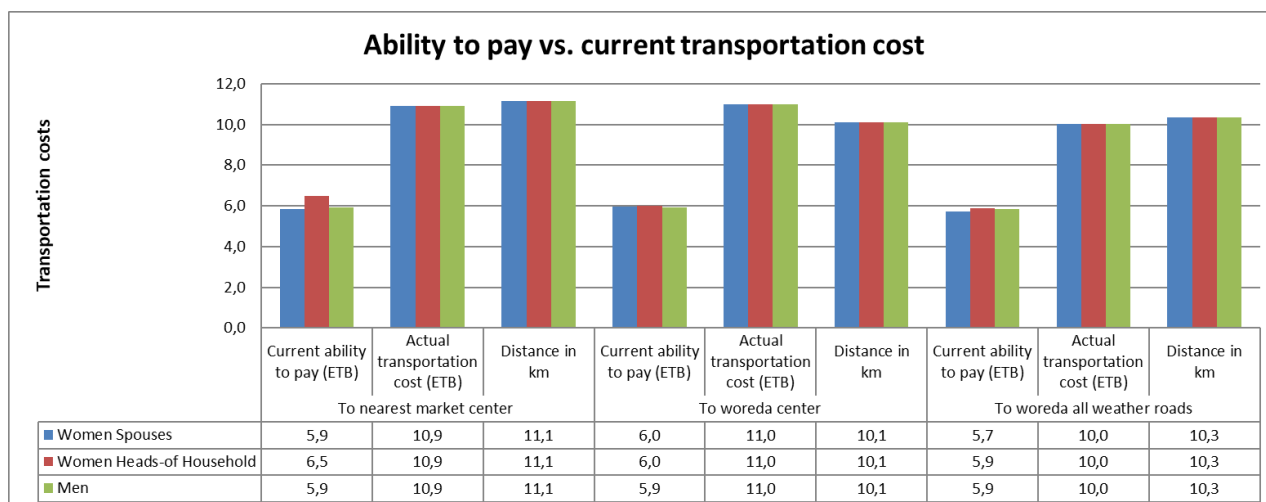


Figure 14: Perception of 'Affordable fare' and actual transportation cost (all figures in ETB)

Among the relatively better-off households who can afford the high, variable fares, midibuses are the preferred option because they offer more room for the cargo. When travelling without cargo, they prefer Bajajs as they can travel faster and can be called on demand. Bajajs are officially banned outside urban centres as deemed unsuited to rural roads and therefore unsafe. Yet, rule enforcement is weak in rural areas and they are largely tolerated by authorities. Minibuses lose out in both scenarios as they offer less cargo space

than midibuses, and are not as easily ordered as Bajajs. Moreover, as buses can also be group-called on demand to attend social events, midibuses are generally preferred to minibuses as they accommodate more people. Midibuses are higher frequency than minibuses. For the reasons mentioned earlier midibuses are preferred to minibuses so that the high demand, coupled with the 50% fare surcharge allowed by local authorities to compensate for an empty return trip, implies an economic incentive for midibuses to ply on LVRR on market days. Yet, even on market days, there are still very few vehicles on rural roads compared to demand so that usually midi (and mini) buses go overloaded and overcrowded. Higher frequency of midibuses is also seen on unpaved (national or regional) inter-urban roads passing through rural areas, which can easily be mistaken for low volume rural roads (Starkey, 2016b).

A side-by-side comparison of the three alternatives is presented in the table below.

Table 4: Available means of transport: A comparison

	Fare	Freight	Frequency	Speed	Safety	Comfort
Midibus	Similar cost	Most convenient for large cargo	Frequency is higher than minibus		If overcrowded, unsafe for pregnant women and women carrying small babies	Considered least important factor in choice of means of transport.
Minibus		Less space than midibus			Perceived as less safe than midibus because rides faster	When overloaded, both midibuses and minibuses are uncomfortable and cause suffocation
Bajaj	Slightly higher	Virtually no storage space;	Can be called on demand	Appreciated for speed and low travel time	Perceived as unsafe and unstable but other factors outweigh low safety	

Preferences for one of these three means of transport is not divided neatly along gender lines. Women Spouses, Women Heads of Households, and Men sometimes have preferences for one over others based on socio-economic situations and division of responsibilities. Usually, one of the following factors come into play.

- a) **Gender and Access to Money:** As explained earlier, men usually control the sale of high-value outputs. This is one of the reasons they have greater control over the

household budget and more say in decision making, than their spouses. They are therefore more likely to take motorised transport instead of walking, as compared to women spouses. Among the three motorised transport options, they are more likely to take the Bajaj despite its slightly higher fare. Women Heads of Households are equally free and empowered to take travel-related decisions within their households. However, their greater freedom is often tempered by lower incomes and lower ability to spend on transport which characterises female-headed households.

b) Gendered Experience of Transport: Since mini and midi buses are relatively scarce, they are always very crowded. This is a disincentive, especially for women. In a Photo Voice exercise conducted in Aynalem village (Kilte Awlalelo woreda, Tigray province), women participants described how finding a seat is a struggle. “If we were men, we would be better able to elbow our way through the crowd.” During pregnancy, the combination of crowded buses and bumpy roads proves to be a deal breaker for women when it comes to mini or midi buses. In such situations, women prefer to call Bajajs if they can afford it, or otherwise prefer to walk. Often, they are just not able to undertake the journey altogether.

c) Size of cargo: Women bear the responsibility to sell low-volume farm produce. However, men are usually in charge of selling large-volume produce, large animals, and farm equipment. Thus, when men and women travel to the nearest market to sell their produce, men prefer midi-buses since they offer the storage space needed for larger-size cargo. Women are often able to carry their produce on mini- buses and Bajajs.

d) Safety, Comfort, and Speed: Minibuses and midibuses are considered safer than Bajajs, and rightly so. They would also be more comfortable if they were not so crowded. Bajajs are faster, partly because they fill up with 4-5 passengers and therefore do not stop to pick up passengers along the way. However, with a three-wheel design, small tyres, and high centre of gravity, Bajajs are less stable and generally considered less safe. When FGD discussants were asked to recount road accidents from the past year or so, most of the incidents discussed involved Bajajs. It is out of valid safety concerns that most Woreda and Kebele administrations do not allow plying of Bajajs on rural roads. However, Women Heads of Households, Women Spouses, and Men prioritise safety, comfort and speed differently on different occasions. In the event of emergencies (except those related to maternal health; government-run maternal ambulance services are available), speed is of the essence and Bajajs are preferred, as they can be called on demand and are significantly faster. During pregnancy and while carrying babies, safety and comfort become higher priorities for women.

Intermediate Means of Transport

The reluctance of midibus/ minibus operators to ply on unpaved rural roads is not unfounded. Restrictions on Bajajs on rural roads is also based on valid safety concerns. These vehicles are suited neither to rural roads nor the rural transport economy. In many other countries, such as the distant Bangladesh and neighbouring Kenya, smaller vehicles better adapted to rural roads fulfil the transport needs of rural communities. Known as Intermediate Means of Transport (IMTs), these vehicles are designed to withstand rural roads, and their operating costs/ seating capacity are in sync with the volume of demand and paying capacity of a rural customer base. Motorcycles, originally well established in South and Southeast Asia and in a number of African countries (e.g. Burkina Faso, Benin, Rwanda and Kenya), have leaped in other West and East African countries as well in the last

ten years, most remarkably in Tanzania. Complementary factors underpinning their rapid expansion are larger availability of low cost motorcycles from China and other Asian countries, reduction of import tariffs, and, very importantly, unfulfilled rural demand for greater mobility and rural transport options. Motorcycle taxis generate huge economic and social benefits (Starkey 2016a, 2016b), especially when they allow rural people bridging the “first mile” to the main road. And yet, in Ethiopia they have not spread as much as in countries immediately South (Rwanda, Tanzania, Kenya) and they are practically absent in the study areas. Motorcycle-based three-wheelers are popular in Egypt (Figure 15), for example, to ferry passengers as well as cargo in both urban and rural areas. Rural Bangladesh is now abuzz with battery operated rickshaws that are well suited to the flat terrain and passenger volume there.



Figure 13: Intermediate Means of Transport: a motorcycle-based three wheeler in Egypt (left); a battery-powered passenger vehicle in Bangladesh (right)

On the contrary, larger-wheeled motorcycle-based three wheelers, have not yet spread in Tigray and Amhara, where motorised three-wheeler options are restricted to the much less rurally-appropriate, small-wheeled scooter-based Bajajs and Piaggio (Figure 16). The latter are much more commonplace in Kilde Awlaelo than in Kobo where the costs can be sustained by higher incomes from irrigated vegetable production and the need to transport large volumes of agricultural produce.



Figure 16: A three-wheeler Piaggio pickup truck transporting vegetables, seen in Woukro town, Tigray state

The unfulfilled demand for motorised IMT options in rural Ethiopia is, to an extent, occupied by pack animals and animal-drawn carts (most commonly pulled by donkeys, Figure 17). These carts mostly operate within villages and on inter-village routes where motorised transport does not operate. Those who don't own a donkey can borrow one from neighbours and relatives. In 6 of the 8 road-adjacent villages studied in Amhara regional state, animal carts were commonly used to transport large goods to and from the market.

However, along the studied roads in Kilte Awlaelo (Tigray state) and Wereketu (Amhara state), people see donkey carts as unviable options given the poorly maintained feeder roads, particularly those that are too rocky or too steep.



Figure 17: A Donkey Cart in Kobo town

Another factor inhibiting the spread of donkey carts is the constant rise in prices over the past decade or so (from 5-6,000 ETB to 30,000 ETB). Between the two studied districts – Kobo and Kilte Awlaelo – donkey carts are more common in the former. This is largely due to the flatter topography and because groundwater sources in Kobo have been developed considerably, so a larger number of farmers have access to irrigation and are relatively more prosperous. In Kilte Awlaelo, on the other hand, most agriculture is rainfed. Women Heads of Households are less likely to own a donkey than women spouses and men, because they have less access to money than WS. Sometimes, it is also more difficult for WHH to borrow one, than it is for MHH, as their social network is more limited than that of men.

A much cheaper, locally-designed cart technology has developed spontaneously in the Rift Valley since the 1970s, which is based on eucalyptus poles instead of steel poles, and unsophisticated steel wheels rather than expensive rubber tyres (Starkey, 2001). This design, however, has not reached yet Northern Ethiopian regions.

Bicycles

The prevalence of bicycles was examined in the study area, based on review of literature that documents the key role played by bicycles in rural transport sector in various other parts of the world (Starkey, 2006), including neighbouring East African countries. A number of bicycles and repair shops were observed on the road in Wukro town. However, in rural areas they are few and far in between. Bicycles do not figure prominently in discussions about rural transport with road-adjacent community members and officials. However, when the topic was deliberately brought up and pointed questions were asked, there was broad consensus that they would be a useful transport options if they were not so expensive. In Adi Kesandet village (Kilte Awlaelo Woreda, Tigray regional state), Fetyem Gebrekidan had to sell one of her calves for the ETB 3600 (150 USD) she needed for her son's bike. Others in her village pointed out that not everyone could afford to do that- being skilled in masonry, Fetyem and her husband are able to find higher paying civil engineering works (maintenance and lining of irrigation canals, for example) from time to time.



Figure 14: An unidentified child riding a bicycle in Adi Kesandit village, Kilde Awlaelo Woreda

A transect survey across bicycle shops in Wukro town revealed that a basic bicycle costs ETB 3500-4000 (150-170 USD), up from an average price of 1300 (55 USD) about 10 years ago. Most bicycles are imported from China. The sharp rise in their prices reflects first and foremost an increase in import tariffs to protect national manufacturing/assembling. It may also correspond to the drop in the value of the Ethiopian Birr in relation to the Chinese Yuan over the past decade.



Figure 15: ETB-Chinese Yuan exchange rate 2008-2017 (Source xe.com)

Moreover, most bicycles available in the study area are fancy sports-type, whereas there would be much cheaper basic options available.

The state-owned armaments manufacturer Bishoftu Automotive industry has just started manufacturing bicycles (Gebrehiwot, 2015). However, it is still early days in its production and its bicycles have not penetrated the markets sufficiently yet. According to a bicycle shop owner in Woukro, domestic manufacturing of bicycles will go a long way towards improving

availability and lowering prices (Gebremariam, 2017). In other African countries, the number of bicycles has recently grown mainly through private sector imports and dissemination, taking advantage of greater availability of cheap bicycles from Asia. However, socio-cultural barriers are still limiting their usage in many African countries, Ethiopia included (Starkey, 2001). It is still to see which path – local manufacturing vs. massive private sector-led imports of bicycles – is the most efficient and effective to increase availability and usage of bicycles in Ethiopia.

6.4.6 What are the most common issues faced in travel, for men, WS, and WHH?

6.4.7 How good is the first mile connectivity (residence to road)?

Road quality: Rural roads – i.e. roads connecting rural areas to urban centres – are usually unpaved and are therefore given to weathering-related issues such as ruts, potholes and erosion. Further, following were the most common issues as observed by the research team and as reported during FGDs, Personal Interviews, Photo Voice, and surveys:

- Narrow sections
- Sharp bends
- Steep stretches
- Lack of cross-drainage structures, such as culverts
- Damaged bridges and fords

(Road quality is discussed in detail in Section 6.2.4).

Road safety: Unpaved feeder roads are prone to seasonal damage and deterioration. During the rainy season, they become muddy and slushy. During transect walks and Photo Voice exercises, participants pointed out sections that get eroded every year. A combination of road conditions and overloading of vehicles increases the risk of vehicular accidents all the more. Much of the study area has steep terrain, with feeder roads that wind along hillsides. Such stretches become especially risky during the rainy season.



Figure 16: “This stretch of the road (connecting Kebele 28 to Kobo town) gets eroded every season. Vehicles can easily fall down the hillside.”- Image by Photo Voice group from Kebele 28 (women group) on 7-3-2017.

Apart from an increased risk of vehicular accidents, road damage increases the travel time considerably. Transport operators, already reluctant to ply on rural roads, drop their frequency even more as road conditions worsen during the rainy season. Women Heads of Household, who already have much time poverty to contend with, are left with even less time to carry out all their responsibilities. Bad roads also hamper ambulance services, which increases the health risk for pregnant women every rainy season.

The First Mile: A key, under-discussed aspect of road quality and safety is the first mile- the stretch between homesteads and the 'collection point' along the nearest feeder road where motorised transport (minibuses/ midibuses/ Bajajs) are available.

This 'first-mile' can be a long stretch. Among respondents in the survey and FGDs, some reported living as far away as 5 km from the feeder road. At best, this first mile is a 'community road,' constructed by village residents themselves using little or no funds from the Kebele administration: cleared of rocks and vegetation, and levelled only as much as is possible using simple manual tools. Often, the first mile is no road at all, with people having to essentially walk through rocky terrain, vegetation, steep slopes, river beds, etc.

In the study area, especially in Kilde Awlaelo Woreda in Tigray regional state, rock outcrops and large sediments from seasonal floods often cover the first-mile stretch. This makes the walk to the transport quite treacherous, especially during the rainy season. "Forget the (feeder) road. The walkway to it from our homes is so difficult. Pregnant women will have to think many times before using it," said Melesh Haregu of Aynalem village, presenting a photograph she had taken (below, Figure 21) at a Photo Voice exercise conducted in November 2016. Bearing the brunt of this most regularly are women, who need medical attention at several points during pregnancy. A bad first-mile stretch makes it difficult for ambulance services to reach patients at their home, who often have to be carried to the collection point on makeshift stretchers.



Figure 17: A rocky 'First-Mile' stretch in Aynalem village

Dust: As vehicles pass on unpaved feeder roads, dust rises behind them and spreads over fields and homesteads adjacent to the road. In FGDs and Personal Interviews, respondents categorised this as a key inclement effect of feeder roads, even as they welcome them overall. The necessary medical statistics were not available to verify this, but WS and FHH

among the respondents showed a high degree of concern about dust as a health hazard especially for children. Two women farmers in Adi Kesandit village said that they believe that “Dust covers our crops, it can be the reason for rust (fungus).” Besides, the women farmers complained that dust on produce can render it unattractive to customers.



Figure 18: Vehicles driving on unpaved roads raise a lot of dust



Figure 19: A field adjacent to a feeder road, in Adi Kesandit village

These apprehensions are not without basis. Unpaved roads contribute almost 40% of all dust (Agujetas, 2016). Long-term exposure to traffic-generated dust has been known to contribute to 1.5-2 million deaths annually (mostly women and children) (Greening, 2011). Layering of dust on crops in road-adjacent fields is known to affect photosynthesis, respiration, transpiration, and to lead to an increase in fungal spots on several crops (Farmer, 1991). Impact of dust from the estimated 13 million km of unpaved roads worldwide is estimated to affect around 26 million hectares of productive land, and lead to a reduction in agricultural revenue to the tune of USD 260 million (Greening, 2011).

To the respondents, the obvious solution to the problem of dust was tarmacking the feeder roads. Review of literature points to a more feasible measure: roadside tree plantation. This is a tried and tested measure, recognised and employed for hundreds of years across the world. The difficulties that arise have mostly to do with management and maintenance of the trees, rather than the costs of planting and the technicality of choosing the right species. However, a successful roadside tree-planting campaign in Amhara province suggests that a participatory approach, focusing on creating a sense of ownership of trees among road-adjacent communities, can be an effective approach (TheWaterChannel, 2017). Besides controlling the rise and spread of dust, roadside tree plantation campaigns can create work suited to women physically and in terms of time management. The ‘Muzaffarpur Model’ of managing roadside plantations (developed in Muzaffarpur, India), shows that a wide range of short-term and long-term jobs can be created for “the elderly, the handicapped, widows, and women...” related to the planting and caretaking of plants along roads. (MoRD-Gol; 2012).

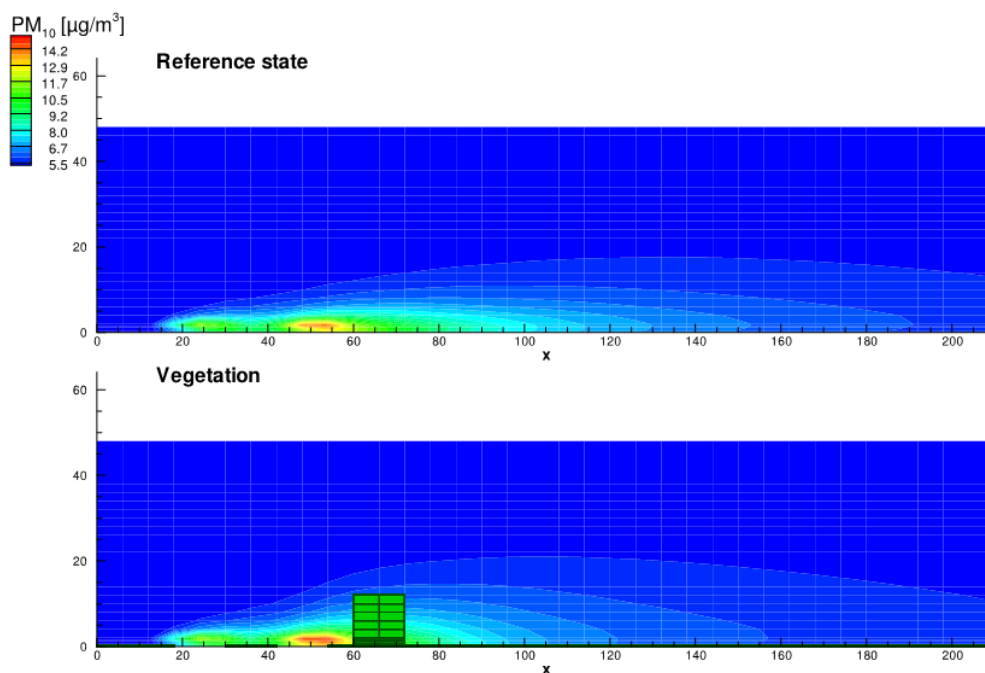


Figure 20: Vegetation barrier like a row of trees along a road reduces the spread of dust emanating from vehicular traffic. (Figure courtesy Dutch Ministry of Infrastructure and the Environment)

6.4.8 How do women’s and men’s travel/transport experiences differ from each other?

Four key aspects define the difference in travel experiences of women and men:

1. Income Differentials: Due to socio-economic factors discussed in Section 6.2.1., Male-Headed Households are more likely to have a higher income than Female-Headed Households. Within their households, male heads have greater control over the household income, assets, and decision-making. Thus, they can spend more on transport than both their spouses and Women Heads of Household. In terms of travel experience, this translates into:

- a) Men being more likely to take the bus rather than walk to the nearest town on market days. Thus, they spend less time on travel and are less exposed to road dust.

- b) Men being more likely to summon a Bajaj Motor rickshaw on non-market days when mini or midi-buses are not available. This also means that Male-Headed Households are better equipped to deal with medical and non-medical emergencies.
- c) Male-Headed Households being able to carry more cargo, as they can pay more, compared to Women-Headed Households
- d) Men being able travel more frequently, and for greater distances, compared to Women Spouses and Women Heads of Household (in that order).

In general, WS are financially stronger compared to WHH as their households have two working adults rather than one. Thus, they can spend more and have a better travel experience. However, this factor can be offset to a certain extent by the greater freedom WHH have to make financial decisions.

2. Difference in responsibilities with which they travel: Again, due to socio-cultural norms related to gender roles, women and men travel for different purposes, which defines their travel experience. Women are in charge frequent chores such as fetching water and collecting firewood, which require them to travel on under-developed paths rather than roads, on foot rather than other means of transport. Often women and girls can spend up to 10 hours every day alone in tasks such as water collection, undermining their health, educational and life chances.

Shouldering the responsibility of selling low-volume farm produce at the market (teff, barley, maize, chickpeas, vegetables and fruits if quantities are small, chicken, eggs, milk, butter, honey, firewood, cactus leaves) and buying household supplies means more frequent trips with cargo for women; as compared to men who travel with bigger, heavier cargo but only around the harvest period. Travelling with cargo makes the journey more expensive and more inconvenient on a more regular basis.



Figure 21: Alganesh Wered from Adi-Ewal village, Kilte Awlaelo Woreda, taking papayas and bananas to sell at the market in Adi Guda. She is waiting for the bus. The fare is 20 ETB, plus 10 ETB for her bags.

Another role allocated exclusively to women is childcare. While the children are young, the mothers have to take them along when they travel. Seldom do men travel with younger children. This makes for a definite point of difference in travel experience. When travelling with young children one needs to either carry them or take frequent breaks. Also, crowded mini and midi-buses are no longer an option.



Figure 22: An unidentified woman with her child at Aynalem village, waiting for a midi-bus that will take her to Wukro town

Household-related responsibilities exclusive to women make them quite inflexible in terms of planning their travel. On market days, women feel the need to finish selling their produce, buying daily supplies and travel back home as soon as possible, so that they can attend to chores like preparing dinner for the evening. Men, on the other hand, can afford to wait until later in the afternoon when the sun is less harsh before they begin their return journey.

3. Dealing with crowding: With demand for transport outstripping the availability of mini and midi buses, crowding is inevitable. Men and women experience and deal with crowding very differently. Crowds are a greater deterrent to women from using transport. “If we were men, we could elbow our way through the crowd and capture the empty seats,” explained Tsegaye Meharet from Aynalem Village, Kilte Awlaelo Woreda. Women are understandably less inclined to squish themselves into the crowd in a bus, especially in a mixed crowd comprising also of men. When travelling with young children- as women often do- or during pregnancy, crowded buses are not even considered as an option. “In such circumstances, we don’t wait for the bus, we just walk,” said women at Woroma village, who travel most frequently to Wukro town 7 km away.

Crowding-related inconveniences affect women across the board- WS, WHH, and girls alike.

While discussing possible solutions to manage the crowding problem, women were shown pictures of transport designs from around the world aimed at managing the problem of overcrowding. A picture of an Ecuadorian bus with multiple entrances evoked the most reaction. Some saying the multiple entrances would help spread out the crowd rather than funnel it through one entrance. Others pointed out that the open design would expose the passengers constantly to dust.



Figure 23: A bus from Ecuador shown to FGD participants as a possible design intervention to manage crowding in public transport

4. Safety: Vehicular safety is an issue important to both women and men. As discussed earlier, both women and men are concerned about the safety risks associated with Bajajs plying on rural roads, despite valuing them for filling a key transport gap. However, a key difference between women (both WS and WHH) and men manifests itself in the area of personal safety. Women are vulnerable to sexual assaults; an issue that rarely applies to men. In almost all SSIs and FGDs with women and men, the risk of sexual assault on women was recounted as a possibility that has to be factored in while planning their travel. Thus, they try to travel in groups, and do not travel late in the evenings. In some areas, a common safety concern shared by men and women is the possibility of attack by wild animals such as hyenas.

7 Assessment and Conclusion

Assessment of the research's key results presents the following as key messages.

7.1 Gendered Experience of Road Development and Transport: Women and Men

Any comment on the gendered experience of road planning, development, and transport must be prefaced by the fact that these aspects affect the quality of life of both women and men tremendously. Rural Ethiopia suffers from an overall scarcity of appropriate transport services. While road development has accelerated recently, much more progress needs to be made before the overall road infrastructure can be considered satisfactory. Progress in this regard will bring benefits to women and men alike. Direct employment opportunities in road development through PSNP has led to an overall reduction in poverty; both women and men value them a lot.

At the same time, socio-cultural norms and the consequent differences in economic standing between women and men have led to differences that largely favour men. With a greater say in household finances, greater control over assets, and considered more suitable for skills-training and higher paying jobs; men have a more prominent voice in road planning, greater involvement in and benefits from road development, and greater affordability and access to transport services. Exacerbating the differential are women's higher work burden and their need to travel more frequently (see Section 6.2). Besides, they are saddled with exclusive responsibilities such as child care and have to deal with specific fears such as sexual harassment while travelling (see Section 6.4.8).

Gender mainstreaming in benefits of rural road planning, road development, and rural transport requires both an overall improvement in infrastructure services; as well as interventions aimed at improving women's participation in decision-making and the benefits they accrue from the road development process. PSNP's gender mainstreaming provisions are a step in the right direction (see 7.3). More can be done through building women's skill base (7.4), and expanding the economic opportunities available to them through the road development process.

7.1 Gendered Experience of Road Development and Transport: WS and WHH

PSNP recognises the need to Women Heads of Household and Female-Headed Households as being a vulnerable target group, having a relatively lower level of access to resources and assets. It provides the guideline that community-level planning committees should prioritise FHH in targeting the benefits of the public works, and to ensure their participation in the consultation process. A specific exception it makes for FHH is allowing public works to be carried out on their land (MoA, 2014). Besides, FHH need to contribute labour to PSNP on behalf of only half the number of family members (MHH need to provide labour on behalf of all family member- *Details in Section 6.3.1.*). This research attempted to identify some more specific ways in which Women Heads of Household differ from Women Spouses, in their benefits from/ experience of road infrastructure development and rural transport.

Both groups share some common experiences as individual women. Personal safety concerns while travelling- such as the possibility of sexual assault while travelling alone or after dark- limits the mobility of both. The government-run maternity ambulance service caters to both of them, and is a key reason why they both value and demand feeder roads. The concern for road dust as a health hazard cut across both groups. Both groups have similar skills to offer in the road development process (see Section 6.4.6).

The participation of both WHH and WS in the road planning process is low, a key reason why gender mainstreaming provisions are built into the PSNP. However, the reasons for their low participation are different. Women in FGDs and SSIs pointed out that for WHH it is largely because of lack of time. For WS, the stated reasons in FGDs varied from "I don't need to; my husband already goes and will convey my concerns" to "...because women don't usually go to such meetings." (See Section 6.2.3).

The key differences between WS and WHH arise as a result of the differences between their responsibilities within their households. WS look after their household with support from their spouse, and are thus likely to be financially stronger and less time-poor. Thus, they can spend more on transport and are likely to have a better travel experience. WHH are likely to have fewer assets. In terms of transport, this could mean a lower likelihood of owning a donkey that could be used to transport cargo on.

Thus, between WS and WHH, the latter are relatively more marginalised. Gender mainstreaming provisions in PSNP would do well to capture this difference, by developing mainstreaming provisions developed with specific needs of WHH in mind. For example, labour obligations (in terms of the number of family members they have to provide labour on behalf of) and daily targets (in terms of metres of road levelled, or stretch of road cleared of vegetation, for example) could be reduced further for WHH, for example.

7.2 Gender mainstreaming in the PSNP

Much of the literature on PSNP highlights the gaps between its provisions and their implementation, and rightly so. Much progress remains to be made, especially in terms of improving women's participation in the planning of roadworks (MoA, 2014), and eliminating exclusion of women from undertaking certain works pegged as being fit only for men (Holmes and Jones, 2011). At the same time, an accurate appraisal of the program's effect on women must note that for all its shortcomings, it has brought about significant changes to women's socio-economic standing and quality of life, especially for Female-Headed Households (Holmes and Jones, 2011). It is highly valued by both rural women as well as government organisations whose mandate it is strengthen social protection available to women (PSNP Task Force, 2017).

Guided by a federal directive to achieve 50% representation of women in administrative bodies, affirmative action has been taken to increase women's participation in task forces and committees from the Tabia (village-cluster) right up to the regional state level. Again, while the implementation of the directive is far from perfect, it has gradually enabled more and more women to provide their inputs at various points in the planning process. Thus, their needs and priorities are slowly seeping into the decision-making process (see section 6.2.3).

It is significant, then, that much of rural road development in Ethiopia is happening through employment-intensive, social protection programmes like PSNP that can create a large number of low-skilled jobs and reserve some of them for women; rather than infrastructure-focussed programmes that will create skilled jobs that only a few can take up.

7.3 Skilling and Improved Tools

Apart creating more unskilled job opportunities that women can take up, there is scope to expand their employment opportunities in higher-paying skilled jobs. Masonry, for example, is not particularly intensive. During the FGDs and SSIs, women identified it as a work they could do with some training (see Section 6.3.5). It pays four-five times as much as unskilled work like carrying stones and digging pits. Discussions with government stakeholders on this particular matter is pending; but the existence of village-level women groups (see Section 6.2.5) could be capitalised on to offer skills that could improve the returns on women's labour.

Additionally, tools that reduce effort required in some jobs can open them up to women (see Section 6.3.6).

7.4 Supporting collateral employment opportunities around road development

Apart from direct employment in road construction, additional employment opportunities are created around the construction site such as catering snacks, lunch, and *talla* to labourers. Several women reported recognising and encashing such opportunities already. However, recognising catering as an additional job created in the road construction process (much like caring for workers' children is) and providing systematic support to caterers could open up a productive employment opportunity for women (see Section 6.3.5).

7.5 Importance of Upgrading Feeder Roads and Improving the First Mile

Upgrading of community roads to feeder roads, and improvements to feeder roads in the form of bridges and fords, makes a huge difference to connectivity within rural areas and connectivity of rural areas to urban centres. With women travelling more frequently and bearing the brunt of bad roads and transport services, they are the first to benefit from the upgrading of infrastructure (see Sections 6.2.4 and 6.3.2). The biggest impact roads make to women's lives is connecting them to the government-run ambulance services for pregnant women. The Women's Bureau of Kilde Awlaleo Woreda told the research team that thanks to the ambulance service, maternal death there is almost zero (PSNP Task Force, 2017). Thus, both from the point of view of gender and infrastructure, it is important that feeder road development continues.

On the same note, it is important to improve the First-Mile connectivity (the path from the homestead to the rural road). For many of the participants in the FGDs and SSIs, this first 'mile' could be as long as 5 km or more. In Photo Voice exercises, rocky, seasonally-eroded first mile stretches were presented by women as one of the biggest issues they faced (see Section 6.4.7).

7.6 Dust and roadside tree planting

Road dust is not particularly a gender-specific issue, even though women respondents showed greater concern about it than men. It is a health hazard, as well as harmful for crops. The respondents' concerns are supported by global statistics, which show that unpaved roads contribute to 40% of all dust, that traffic dust accounts for 1.5-2 million deaths annually, and that dust costs up to USD 260 million in lost agricultural revenue (Greening, 2011). According to FGD and SSI respondents, the way to address this issue is to tarmac all unpaved roads.

A more feasible solution is roadside tree planting. Experiences from elsewhere in Amhara state and from India provide examples as to how such a measure could be implemented besides controlling road dust, tree planting by itself will create the kind of works that can be linked to PSNP and that women can take up (see Section 6.4.6).

7.7 Promoting Intermediate Means of Transport (IMTs) to fill the rural transport gap

Experiences from other countries have shown reliable, economical rural transport systems cannot be set up without IMTs (Fernando and Porter, eds., 2002). IMTs are often modified versions of locomotives that have been customised to rural road conditions, local needs, and ability to pay. Their absence is conspicuous in rural Ethiopia when private transport operators refuse to ply their mini and midi buses on rural routes citing low-quality roads as the reason; and when three-wheeler 'Bajaj' motorised rickshaws continue to ply on rural roads despite being banned in those areas over safety concerns.

The customisation of such IMTs is driven by local enterprise. The value chains around such solutions are sustained by retailers and repairmen at village and district levels. Ethiopia is marked by a low-level of an indicator known as 'Entrepreneurial Intentions,' defined as intentions, backed by ability, to pursue a business activity within the next 3 years, much below the corresponding figure for Sub-Saharan African region. Current and potential entrepreneurs identified access to finance, corruption, and bureaucracy as the biggest constraints to enterprise. (IDRC, 2012). Most manufacturing units are concentrated around the Addis Ababa capital region, those in rural area are few.

Economy	Entrepreneurial intentions **
Angola	70%
Botswana	72%
Ethiopia	24%
Ghana	60%
Malawi	70%
Namibia	45%
Nigeria	44%
South Africa	12%
Uganda	79%
Zambia	55%
Sub-Saharan Africa Average (unweighted)	53%
Latin America and Caribbean Average (unweighted)	34%
MENA Average (unweighted)	26%
Asia Pacific and South Asia Average (unweighted)	17%
European Union Average (unweighted)	13%
Non-European Union Average (unweighted)	14%
United States	13%

Figure 24: Select Sub-Saharan countries and prevalent 'Entrepreneurial Intentions.'
Table courtesy IDRC, 2012

Such business environment contributes in no small measure to the rarity of IMTs as noted in previous sections. Low levels of enterprise do not make for a conducive environment for local manufacturing units and value chains to set up, which can enable the design and diffusion of IMTs. Still, probably the largest barrier to the dissemination of IMTs are high import tariffs for bicycles, tricycles, and motorbikes. In African countries with much lower import taxes, such as Kenya, local entrepreneurs could massively import and disseminate cheap bicycles and motorcycles without compromising local employment opportunities. On the contrary, jobs are created and sustained all along the value chain in assemblage, maintenance and repair, and rental businesses. In addition, massive usage of IMTs in rural areas is bound to unleashed a whole potential of social and economic options and benefits for rural people.

If the government was to play a key role in boosting the availability of IMTs, it should start by ensuring that appropriate, affordable materials are available for the fabrication/repair of carts and bicycles. In addition, designs of transport means have to be adapted to match local (gender differentiated) needs and preferences. The first steps should include demonstrations, feedback, and field-testing of the IMTs. The intervention should include support to local entrepreneurs (mechanics, welders, transport operators), in the form of technical support and even financial subsidies to start with. After such initial support, local entrepreneurs can be expected to adapt IMTs to local road conditions, routes, and purchasing powers; and gradually develop services and value chains around them.

8 Conclusions

Gender relations and norms are rooted deep into the society and culture. Ethiopia's experience with gender mainstreaming in PSNP is an example of an agency with legitimacy (the government) intervening and being able to achieve incremental but significant change by providing entitlements—of cash, of decision-making power—through a social protection programme used also to plan and build public assets. Improvement of the outcomes will be helped through greater skills-development, and through recognition and support of women

entrepreneurs who can take advantage of business opportunities arising around road construction sites. Gender mainstreaming provisions can be targeted better by taking into account the key differentials between Women Heads of Household and Women Spouses, and developing special mainstreaming provisions directed at the former.

Women stand to benefit the most from improvement in roads and mobility. Mobility in rural Ethiopia at this point will gain the most from the availability of Intermediate Means of Transport, which have proven to be the basis for rural mobility across the world. This will require proactive efforts to test, adapt, and introduce them in rural markets.

Key results from the research currently being disseminated among key stakeholders. Implementation of recommendations will take place through their further validation, formulation of action plans, and field-testing. The main implementers of the research project, MetaMeta and Mekelle University, are taking the process forward through their involvement in several ongoing projects related to road development, transport, mobility, and gender. Stakeholders in Tigray and Amhara provinces are already showing much interest and involvement in the area of IMTs. Currently, several IMT designs from Bangladesh and Egypt are being examined and modalities being discussed as to the best ways to field-test them in the region.

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Logframe Indicators (Note: The purpose of this section of the CR is to summarise the extent to which this activity has contributed to the ReCAP's higher-level objectives. Where response is YES supporting documentation is required separate to the report)			
Outcome	Question		Response (Underline Answer)
Sustainability	Did this project lead to any concrete examples of change, influenced by ReCAP research that will be applied to Km of road?		1. YES 2. <u>No</u> 3. Don't Know
	Were Partner Governments and/or other financiers involved in co-funding this research?		1. YES, through <u>Contributions in Kind (K)</u>
	Type of Contribution: K – Funding of Trial Sections, Staff Time, Dissemination and Training C - Funding of Research Programme Core Costs, Research Contracts, Capacity Building and Knowledge Management	Value of Contribution (in £ m)	Source: Tigray and Amhara Bureaus of Agriculture, Tigray Bureau of Road and Transport (Staff time spent on dissemination and in fieldwork)
Research and Uptake	Were any Peer-Reviewed Papers made available in open access format generated due to the implementation of this project?		1. YES (to be completed before September 19, 2017) 2. No
	1.3. Were any National Policies, Manuals, Guidelines and/or final research outputs been fully incorporated into Governmental/Ministerial Requirements, specifications and recommended good practice as a result of engineering research conducted during this project?		1. YES 2. No 3. <u>Not Applicable</u> If yes, provide Data
	1.4. Were any National Policies, Regulations and/or practises for Rural Transport Services been modified or introduced as a result of this project?		1. YES (the regional government of Tigray is working actively towards field-testing and promotion of IMTs. A consultation was organised as follow-up to presentation of project's provisional results in November) 2. No 3. Not Applicable
Knowledge Dissemination	3.1. Did this Activity result in a National Research Centre (NRC) being Linked to an electronic repository for rural transport Knowledge?		4. YES 5. <u>No</u> 6. Not Applicable

	3.2. Did this project Generate Knowledge Presented and discussed at a high level international development conference or debate?		<ol style="list-style-type: none"> YES (Provisional results presented at International Leadership Course on “Road Water Management for Resilience” 23-28 February 2017 in Mekelle, Ethiopia. No Not Applicable
	3.3. Was the knowledge generated by this project disseminated through workshops or dedicated training?		<ol style="list-style-type: none"> YES ([1] Inception Workshop, Mekelle. 16 Nov 2016. 9 participants. [2] Multi-stakeholder workshop, Tigray. 1 March 2016. 15 Participants. [3] Multi-stakeholder workshop, Amhara. 9 participants. [4] Webinar co-organises with International Roads Federation ‘Making Roads Work...’ Aug 12, 2017.41 participants.) No Not Applicable
Capacity Building	2.1. Did country-based African/Asian experts or institutions take lead roles during the implementation of this project?		<ol style="list-style-type: none"> <u>Yes</u> NO
	Name	Nationality	Position
	Kebede Manjur, Mekelle University	Ethiopian	Head of Department-Resource Economics, Agricultural Extension, and Development
	2.2. Was this project managed through a National Research Centre (NRC) and supported by ReCAP funding for technical assistance and capacity building?		<ol style="list-style-type: none"> YES, with NRC being <u>Operational-initiating, carrying out and producing papers from Research projects</u> No
2.3. Were female researchers involved in providing inputs at a senior technical level?		<ol style="list-style-type: none"> <u>Yes</u> NO 	
Name	Position	Inputs	
Dr. Cecilia Borgia	Research Program Manager, MetaMeta	Proposal Development, Research Design, Field Research, Reporting	