



Ministry of Rural Development  
Government of India



# International Conference on New Technologies and Innovations in Rural Roads

24-26 May 2022  
Pragati Maidan, New Delhi, India



## Ministry Of Urban And Infrastructure Development Ethiopian Roads Administration

### Rural Roads Program In Ethiopia (Achievements and Challenges)

Organising Partners

Organized by  
National Rural Infrastructure Development Agency,  
Ministry of Rural Development, Government of India



May 26, 2022  
New Delhi, India

# Ethiopia at a Glance



## At the Horn of Africa

- **Capital City: Addis Ababa**
  - ✓ the political Capital of Africa

- **Area=1.13 ml sq.km**
  - ✓ Five times the size of UK
  - ✓ Almost twice the size of Texas

- **Population: about 115 million**

- **Altitude** ranges from +4550m to -130m

- **Currency: Birr (ETB)**



Scale 1:51,400,000



## Ethiopia ... continued



The highest point is Ras Dejen (or Dashen; 14,872 feet [4,550 metres])—the highest peak in Ethiopia—which is situated within the Simien National Park (a UNESCO World Heritage site).

The Danakil Depression in Ethiopia is the lowest point in Africa. It's an inhospitable but extraordinarily beautiful area, characterized by sulphur lakes, salt mines and extremely high temperatures.





# Ethiopia ... continued

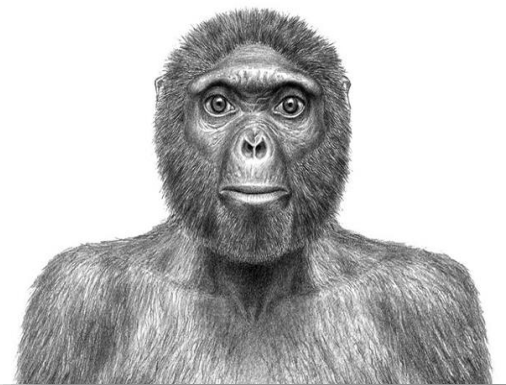


## Origin of Humankind!

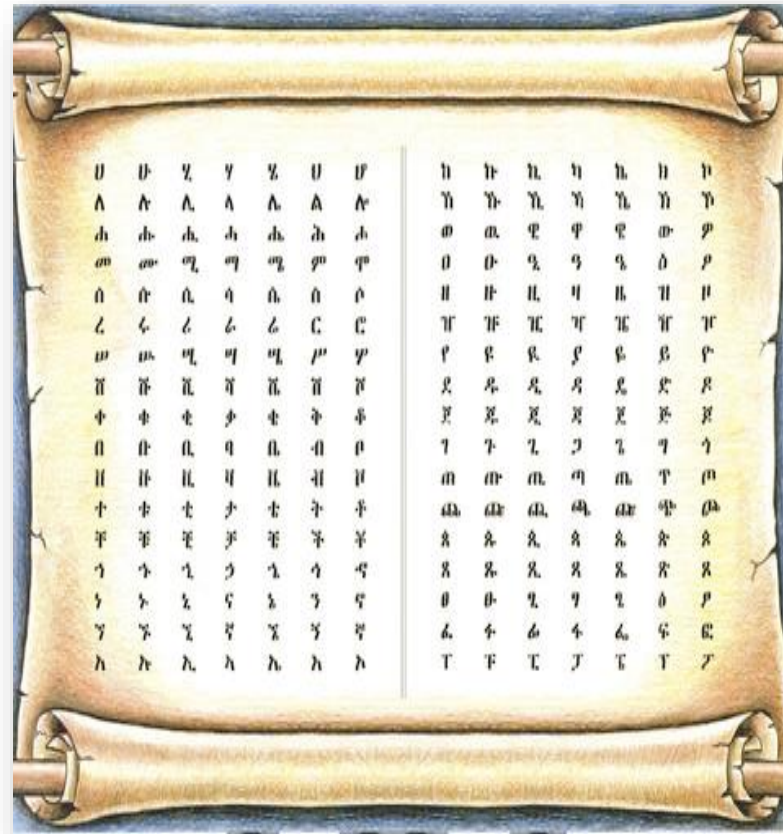
➤ Over 80 languages spoken and some 200 dialects

✓ 13 Months of Sunshine

✓ Eight years younger."



○ *Ardi/*  
*Ardipithecus*  
*ramidus* 4.4  
*million years*



እኩል Sunday	ሰኞ Monday	ግንቦት Tuesday	ረቡዕ Wednesday	ጥምታ Thursday	ቀንብ Friday	ቅዳሜ Saturday
		፩ 11	፪ 12	፫ 13	፬ 14	፭ 15
		፮ 16	፯ 17	፰ 18	፱ 19	፳ 20
፶ 6	፷ 7	፳፩ 8	፳፪ 9	፳፫ 10	፳፬ 11	፳፭ 12
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፳፻፻፮ 27	፳፻፻፯ 28	፳፻፻፰ 29	፳፻፻፱ 30			

September 11 Ethiopian New Year  
September 21 The Finding of the True Cross (Meska)

➤ *Lucy/dinkineshi/Australopithecus ramidus* 3.2 million years

Ethiopian  
alphabet: 'Fidel'

Ethiopian  
Calendar



# Ethiopia ... continued



*The Mother Land of Coffee* #1 Coffee exporter in Africa



*A Country of Great Athletes*



*The Great Ethiopian Renaissance Dam*



*One of the precious Contributions of Ethiopia to the world!!!*



# Ethiopia ... continued



## Notable Places

### ◆ Lalibela

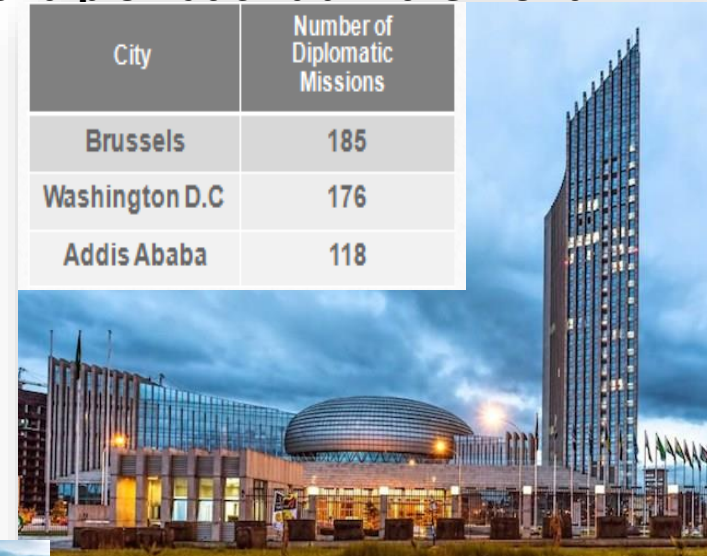
11 churches carved from stone, connected by tunnels, 800 years old

### ◆ Gondar

castles from the 1600s

Addis Ababa, Ethiopia: **Africa's Diplomatic Capital**, and third biggest center of diplomatic hub in the world

City	Number of Diplomatic Missions
Brussels	185
Washington D.C	176
Addis Ababa	118



10 sites registered as World Heritage sites by UNESCO

◆ Axum Obelisks  
the seat of the ancient Ethiopian civilization



# The Road Sector Development Program



## The Situation in 1997

Total Road Length **26,500 km**

Road Density/ 1000 sq. km **24 km**

Proportion of area more than **5km** from all weather road **79%**

Average distance to all weather road **21.4 km**

Proportion of Total Road network in Good Condition **22%**





# The Rural Roads Development Program



## Universal Rural Roads Program - Rationale



- Rural Population – close to 100 mil.
- **Isolated** rural population => Which means they will remain poor economically.



- Farmers grows only staple foods not cash crops – **access to market was difficult**
- The Agricultural sector needs **efficient Transport**





# URRAP ...continued



- The rural population walks more than **1000 hrs (3000 kms)** in a year.
- More than **90% of travel time** was for domestic purpose;
- Transport burden on **women** was very high

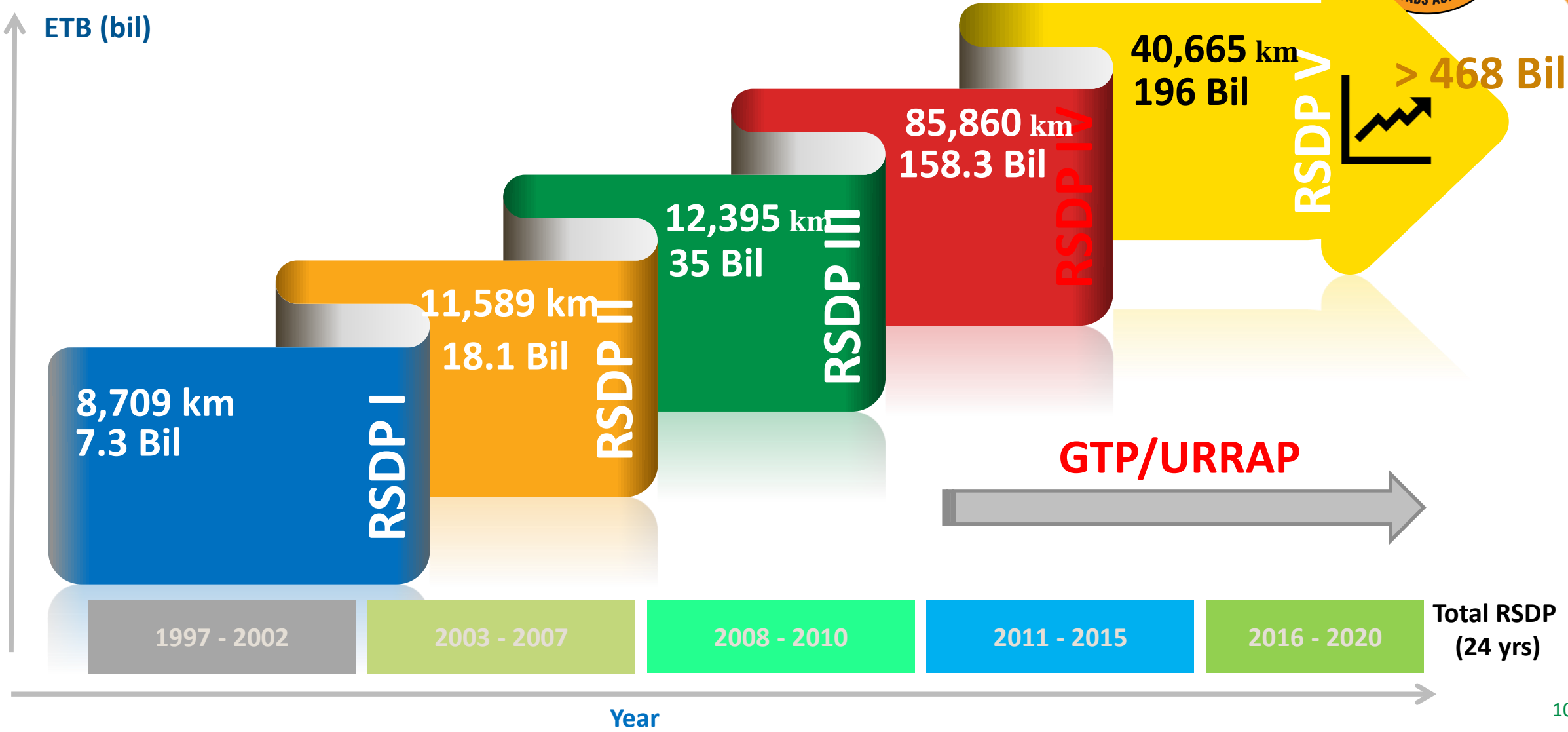
- Heavy reliance on walking and carrying



# Road Sector Development Program /RSDP/ Investment



5 Phases completed; 6<sup>th</sup> Phase under implementation::

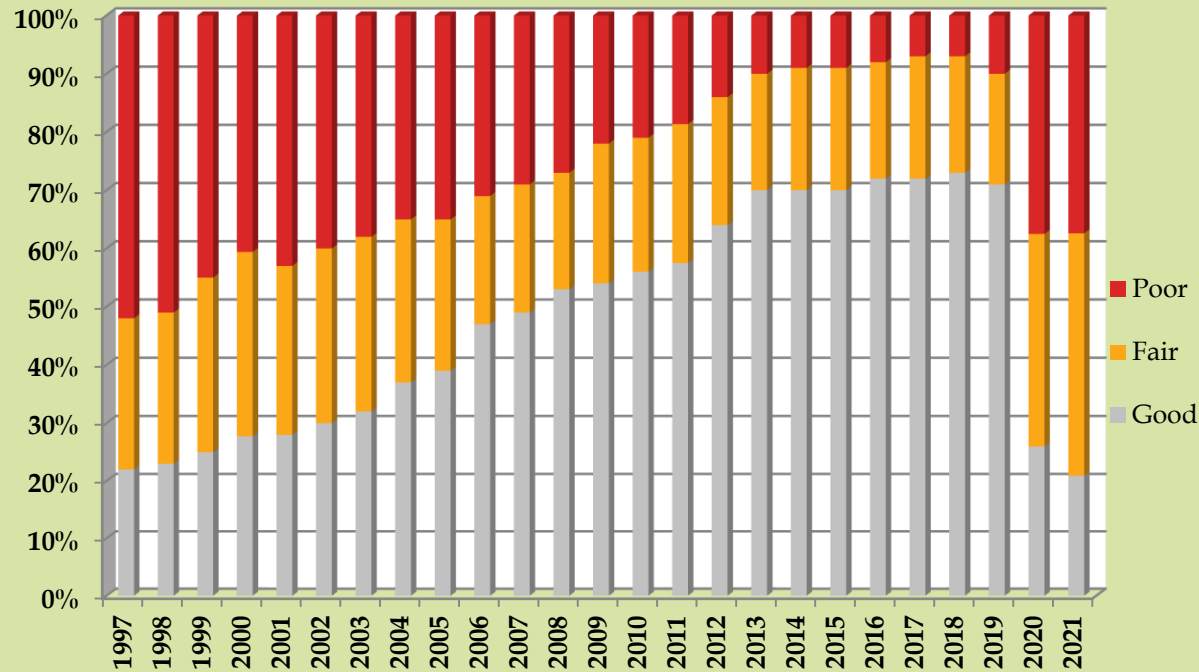




# The Road Sector Development Program /RSDP/ Performance



## Road Condition



Indicators	1997 (RSDP Start)	2021 (End of RSDP V)
Proportion of Asphalt roads in Good Condition	17%	26%*
Proportion of Gravel Roads in Good Condition	25%	14%*
Proportion of Rural Roads in Good Condition	21%	31.8%
Proportion of Woreda Roads in Good Condition	-	14.7%
Proportion of Total Road Network in Good Condition	22%	20.8%
Proportion of Total Road Network in Acceptable Condition (Good +Fair)		62.5%
Road Density per 1000 sq.km	24.1 km	135.8 km
Road Density per 1000 population	0.46 km	1.42 km
Proportion of area more than 5 km from all-weather road	79%	33.1%
Average distance to all weather road	21km	4.5 km
Road Network length (in km) including URRAP and Municipality Roads	26,550 km	155,830.1 km



- **Under GTP I:**
  - To construct **71,523** km of all weather access roads;
  - Connect all Kebeles (> **15,000**) by all weather road;
  - Labor based method, generating employment;
  - Focus on Appropriate Equipment & Tools;
  - Opportunities for Small and Medium Enterprises;
  - Making better use of Local Materials, Resources and Technologies;
  - Safe Roads
- **Under GTP II:**
  - URRAP + Regional = 90,000 k.m



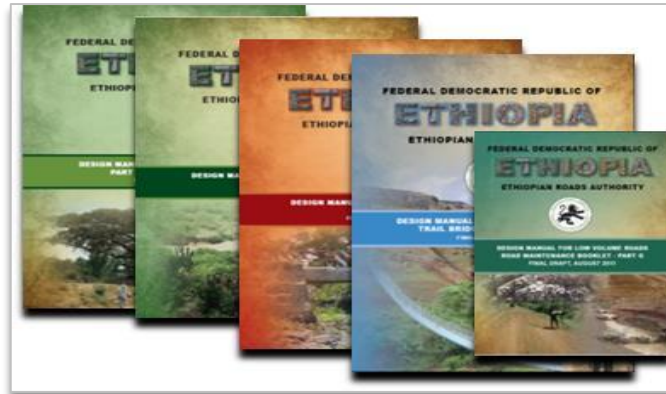
## LVR Manuals



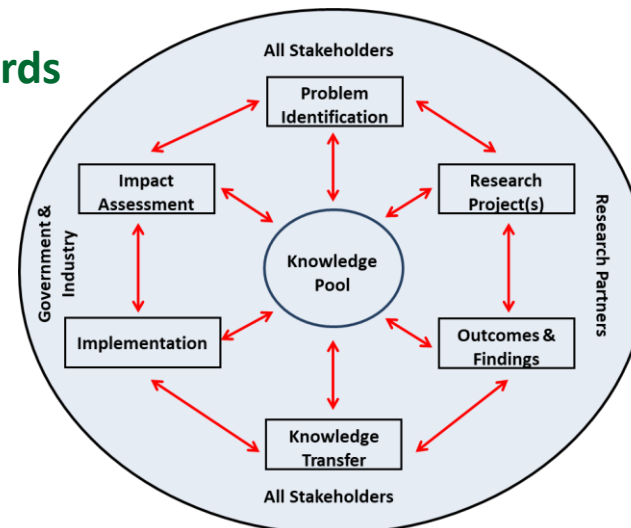
### Why LVR Manuals?

- The Standard Approach remain overly conservative, inappropriate and far too costly for application on much of the country's rural road network.

- Application of appropriate design standards
- Better understanding and use of locally available materials
- Alternative options for road surfacing
- Application of innovative construction techniques
- Greater use of local labor



AFCAP and ERA



Knowledge Development and Transfer Model

- **Standard** – DC1 or DC2
- **Confidence** – clear picture to government on what type of roads will be constructed on what cost
- **Knowledge transfer** – distribution of the manuals and **training** - > **40,000**
- **Local capacity** – promotes utilization of locally available resources & intermediate equipments
- **Sustainability** – maintenance booklet



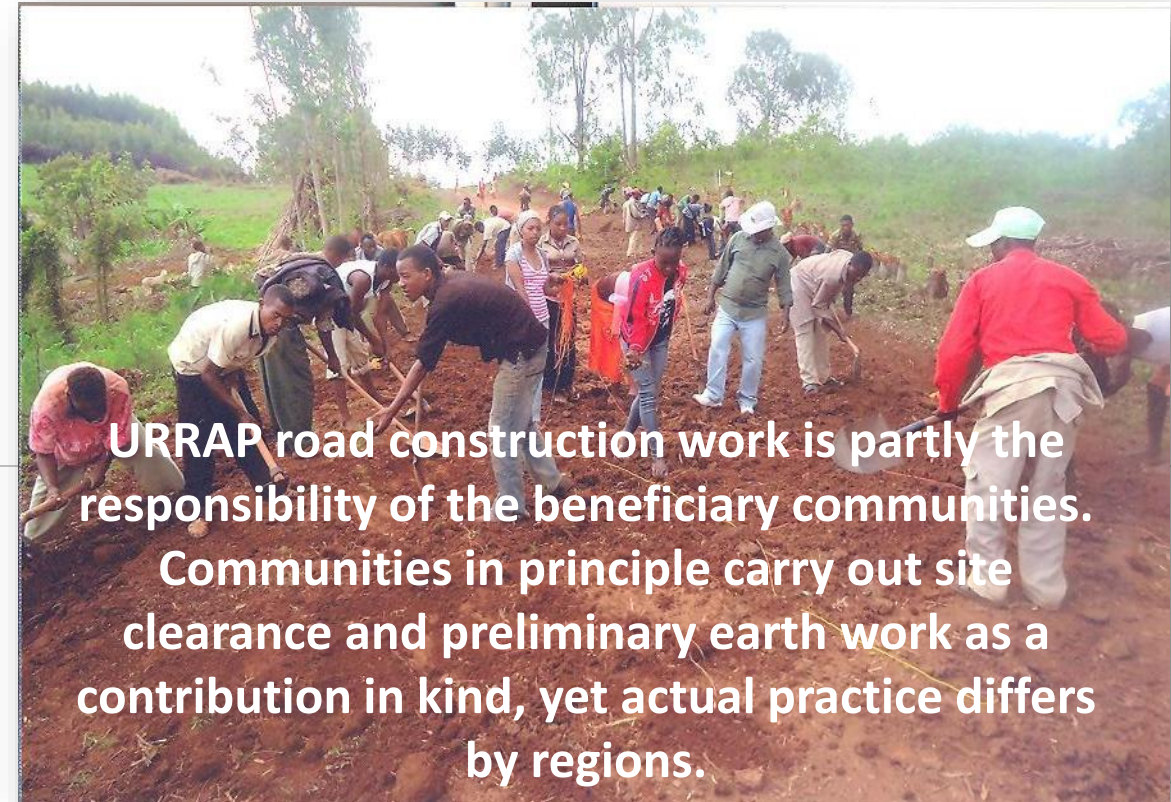
# URRAP ...continued



## URRAP (Particularly in GTP I) was:

- Supported at all levels of Government with strong political sanction at Kebele, Wereda and Regional levels
- Socially right and environmentally acceptable
- Institutionally possible
- Technologically appropriate and practical
- Economically viable
- Financially feasible

**Per km cost < USD 30,000**  
**Total program cost (GTP I) > USD 1.5 bil.**





# Achievements



## Road Network Size and Kebele Connectivity

No.	Regions	Number of rural Woredas	Number of rural kebeles	Road constructed (km)	Kebeles connected roads so far	
					In number	In percent
1	SNNPR	134	3899	12,087	2635	68
2	Amhara	185	3862	13,287	2277	59
3	Oromia	29	6,478	37,970	6058	94
4	Tigray	34	737	2,613	573	78
5	B/Gumuz	20	475	635	264	56
6	D/Dawa	1	38	316	38	100
7	Harari	9	36	166	25	69
8	Gambella	13	248	53	90	36
9	Somali	93	1444	0	122	8
10	Afar	34	413	0	193	47
<b>Total</b>		<b>552</b>	<b>17630</b>	<b>67,127</b>	<b>12,275</b>	<b>70</b>



**Community Contribution**  
 – More than 40 million man-days  
 - ETB 4.3 Billion  
 +  
**Paid Employment Opportunity**



- **271** Consultants and **945** small scale Contractors trained
- **> 8,000** copies of LVR manuals distributed
- **> 5,000** technicians and middle level professionals are trained in ERA training centres.
- The Capacity of **>500** Woreda (District) Road Offices has been built.
- **> 300,000** permanent and temporary jobs every year
- About **50 thousand km** of all weather rural roads in less than five years







foot trail bridges to solve access problems



So far 106 trail bridges are constructed



## Co-financing

- HELVETAS Swiss
- RRAs
- Community
- Coordination with other programs - AGP





**Study by WB - 2018**

## **Rural Roads, Poverty, and Resilience**

In general => The study finds that recently developed rural roads have **brought significant welfare and economic impacts for rural Ethiopians** who would have otherwise been physically and economically isolated.





households in connected communities increased consumption by 3.8 percent each year during the period.

=> rural roads increased household **consumption** by 16.1 percent between 2012 and 2016.





Importantly, poorer people gained more from recently developed rural roads: **without rural roads, 10 percent more households would have been poor.**

households were less likely to fall into or remain in poverty when connected by all-weather roads in drought areas

women and the youth—have engaged in wage jobs in remote communities.

indicates the contribution of rural roads to reducing vulnerability and enhancing resilience against disaster shocks.

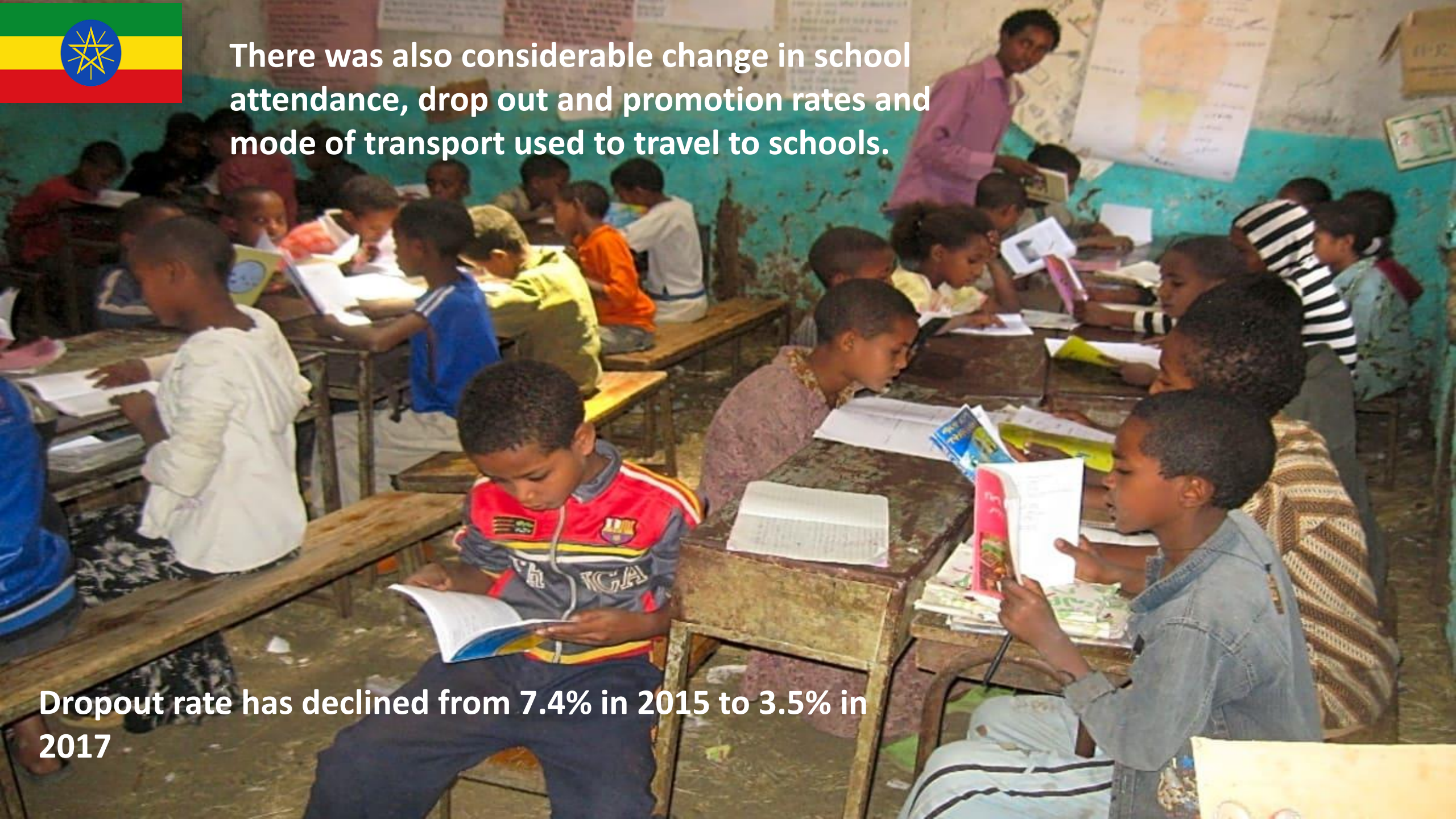


By connecting to markets, rural roads have widened the economic base in otherwise physically and economically isolated communities.





There was also considerable change in school attendance, drop out and promotion rates and mode of transport used to travel to schools.



Dropout rate has declined from 7.4% in 2015 to 3.5% in 2017



**One of the contributions of road is the changing crop pattern from subsistence food crops to high value crops.**

**The change in agricultural input utilization (such as fertilizer and improved seeds) was also considerable. The proportion of households using fertilizer increased by 8.8%**

**The research indicated that households in areas farther away from towns and/or affected by droughts have clearly benefited from rural road development.**



## Case Study: Adigudem to Hareko Road Project, Hintalo – Wejerat Wereda, Tigray Region Interviewees: Farmers

*“...before the road was constructed it was difficult for pedestrians and animals to pass specially during the rainy season because of the big rivers crossing the road. There was no access for motorised vehicles. Now the travel time in the rainy season has been reduced from over about 2 hours to only 30 minutes. The new road is used by a large number of pedestrians and animals as well as some motorised vehicles.”*



# Challenges

The main challenges observed during the implementation of rural roads program:

- Policy and Institutional gap;
- Lack of sustainable funding;
- Lack of organized and comprehensive system for M&E;
- Gap in continuous capacity building at all levels;
- Low capacity and performance of contractors and consultants;
- Rent-seeking attitudes and practices;
- Incomplete roads – structures missing;
- LVRs carrying more traffic than design standard;
- Problems with machinery and coordination;



**Routine maintenance is being done by the community participation with the help of Wereda (Huge gap in implementation)**



## Lessons and Concluding Remarks

- Political Commitment – budget
- Setting minimum service level/standard – LVR Manual
- Linkage with other sectors – building & using local capacity
- Community ownership – free contribution
- Investing in LVRs is more effective in improving rural accessibility
- rural roads contributed to reducing vulnerability and enhancing resilience against disaster shocks
- **Sustainability remains to be the main challenge**
- **Can learn from PMGSY**



# Thank you!



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Best Roads for Prosperous Ethiopia