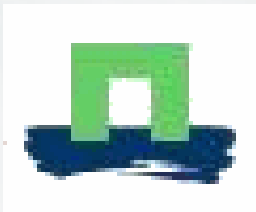


Multiple use of water for people and livestock in the Legedini watershed

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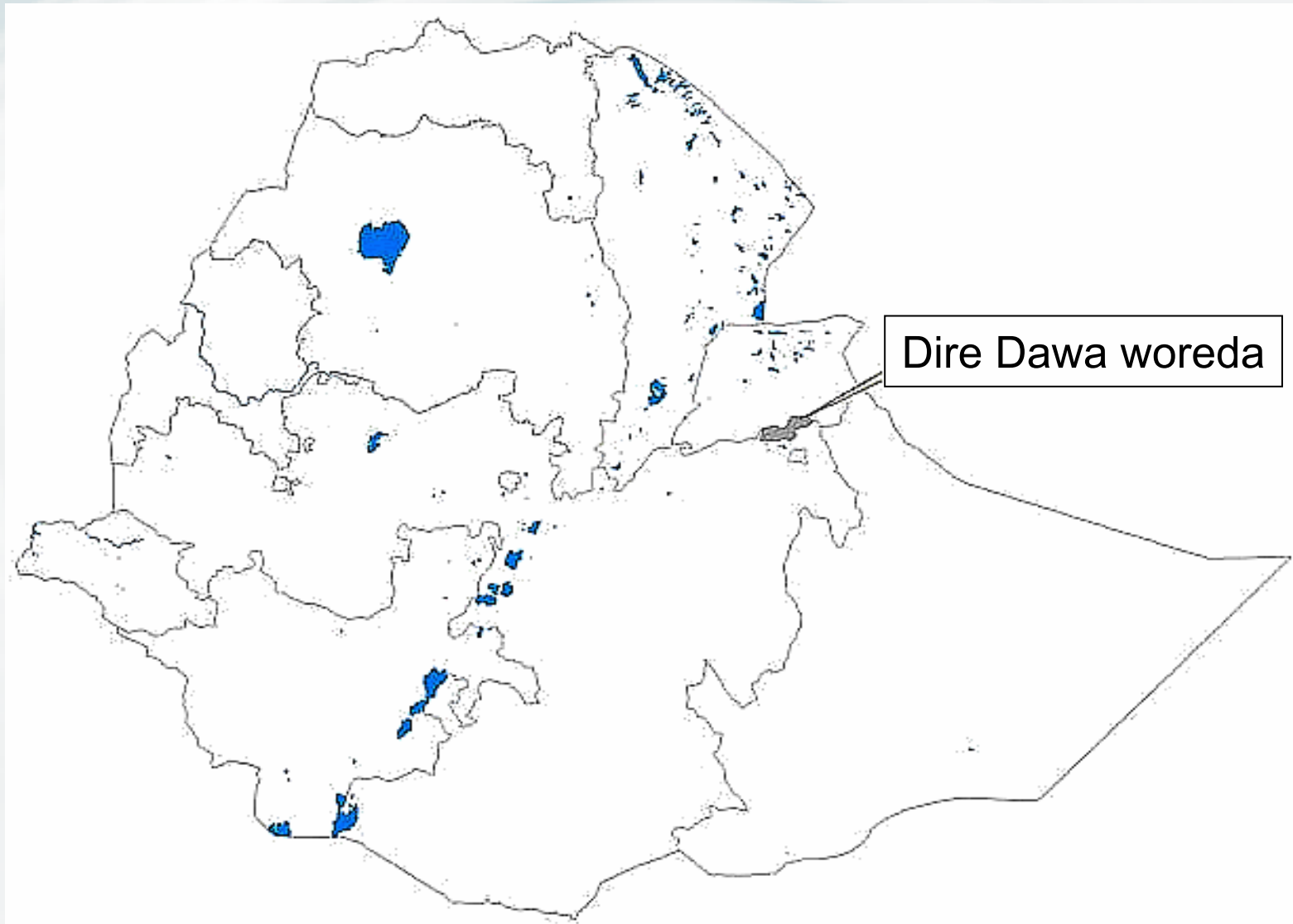


Multiple use of water in Legedini

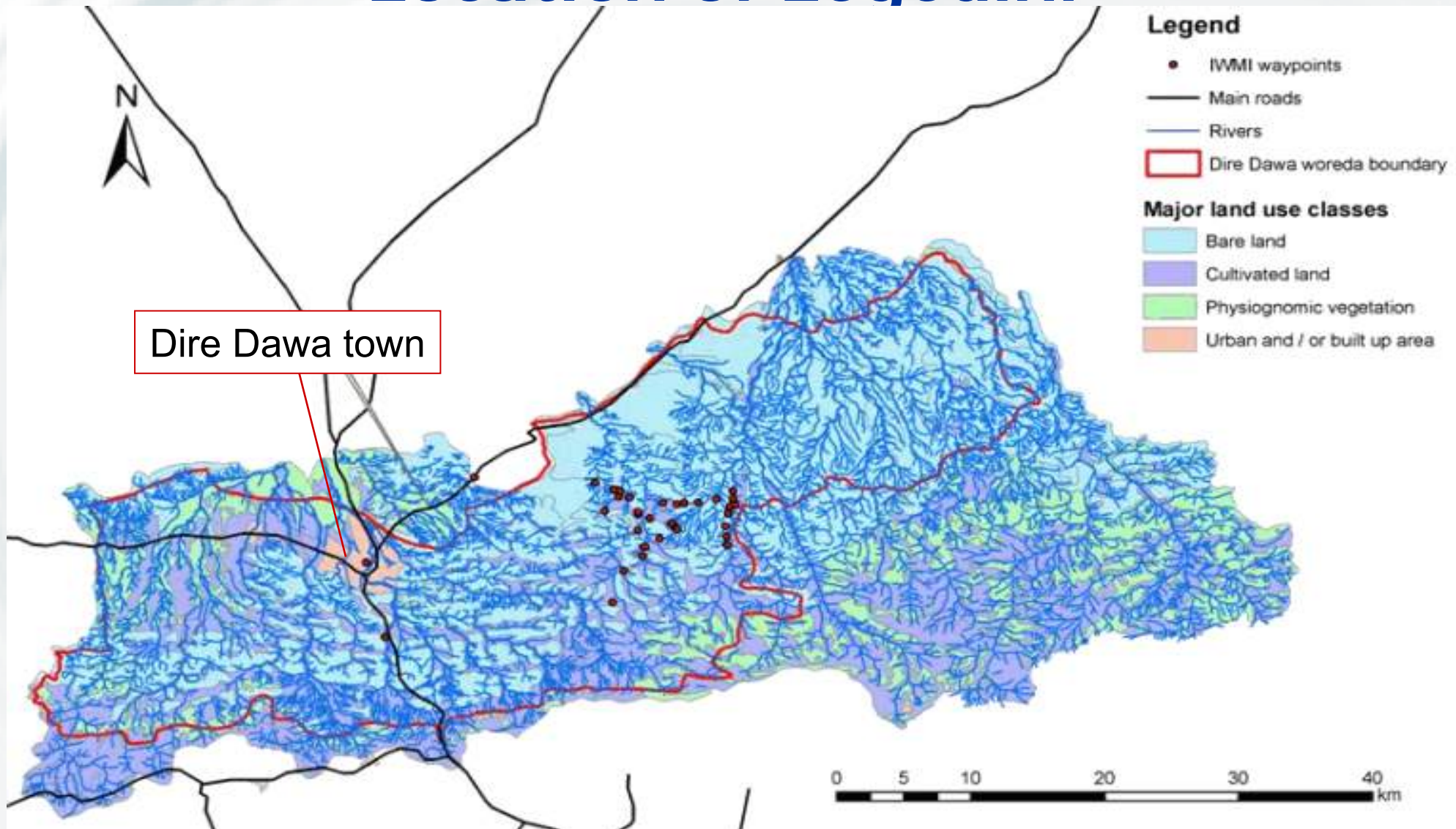
1. Study site
2. Situation analysis
3. Options for improvement



1. Study site: Legedini



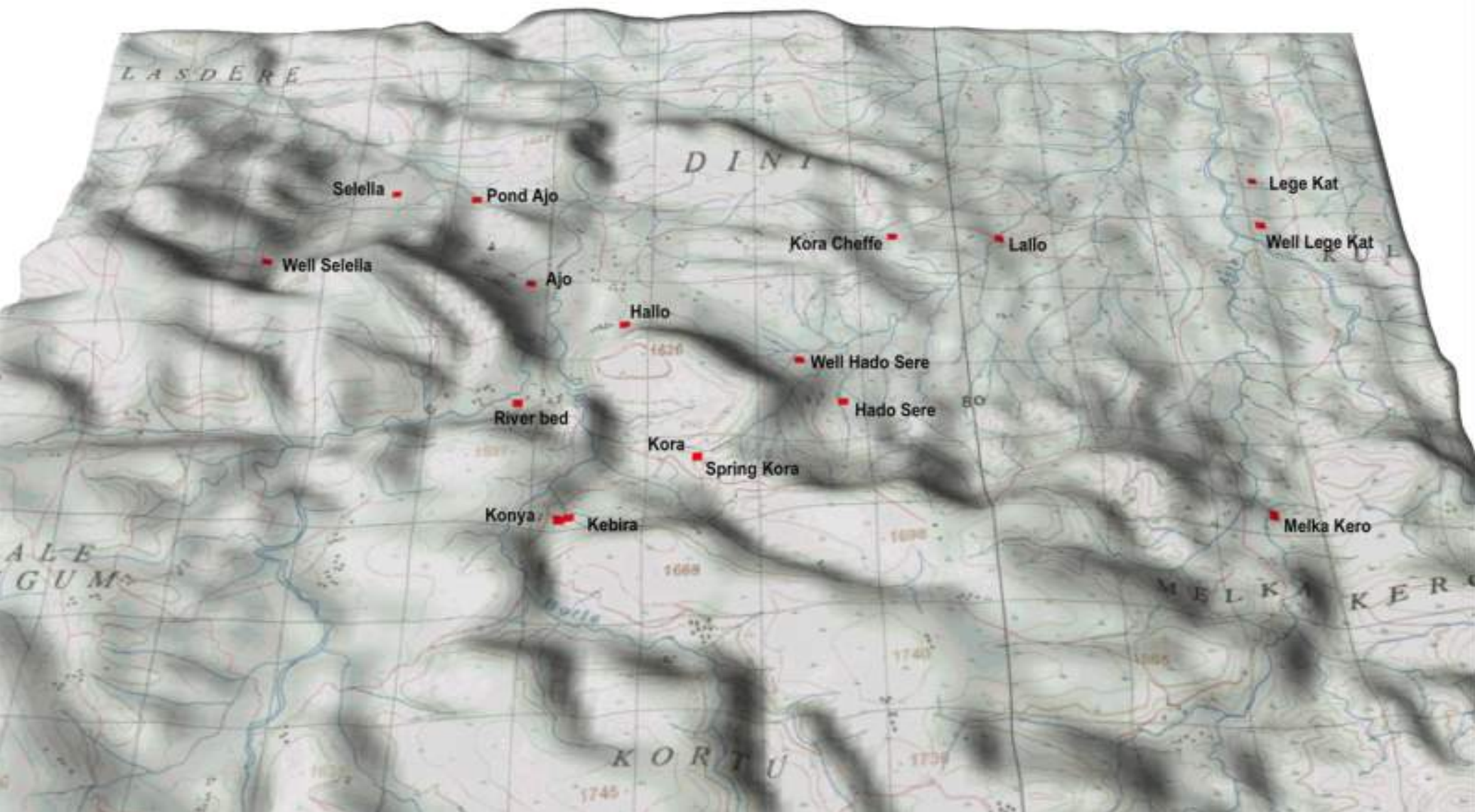
Location of Legedini



Legedini Peasant Association

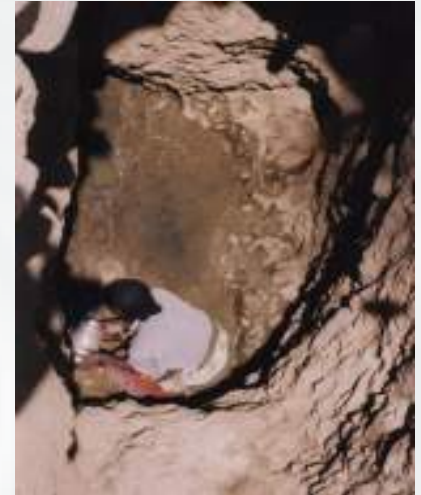
- Dire Dawa district
- 11 settlements over 9,300 ha, 637 cultivable, 0.8 ha cropland/hh
- Population 3000 - 4000
- Agro-pastoralists: 2000 cattle, 2500 goats, 1200 sheep, 200 donkeys, 200 chicken, 40 bee colonies
- Average sorghum & maize subsistence, 350-600 kg/ha/year
- Ethnic group Gorgora, muslim
- Altitude: 1100 – 1600 m, mountainous
- P = 400 - 650 mm bimodal (Jul-Sep & Mar-Apr)
- T = 26 – 30° C

Legedini watershed



Legedini watershed

- Multiple sources for multiple purposes
 - Shallow wells
 - Deep wells
 - Borehole with distribution network (serves 4 villages)
 - Protected spring with network
 - Unprotected spring
 - Water harvesting pond
 - Roof catchment on public buildings (in disuse)
- Main concerns:
 - Women - water for domestic uses
 - Men - water for irrigation



2. Situation analysis

- **Benefits** through water development
 - Directly & indirectly
- Food insecurity in all villages
 - Unreliable rainfall & degraded environment → few diversification opportunities → low income
- Water shortage in most villages
- In house water treatment and hygiene practices low
- Water **quality** varies between sources and over time
- **Institutional gap**
- **Key constraints**

Direct benefits

- Improved human health (↓ diarrhea)
- Increased livestock production
 - Higher frequency of drinking
 - Higher water intake
 - Increased feed consumption
 - Less energy lost on walking for water
 - Reduction of # spontaneous abortions
 - Increased milk production/animal
- Drip irrigation stimulates good watering practices
- Opportunities: latrines, fencing of water bodies, terracing



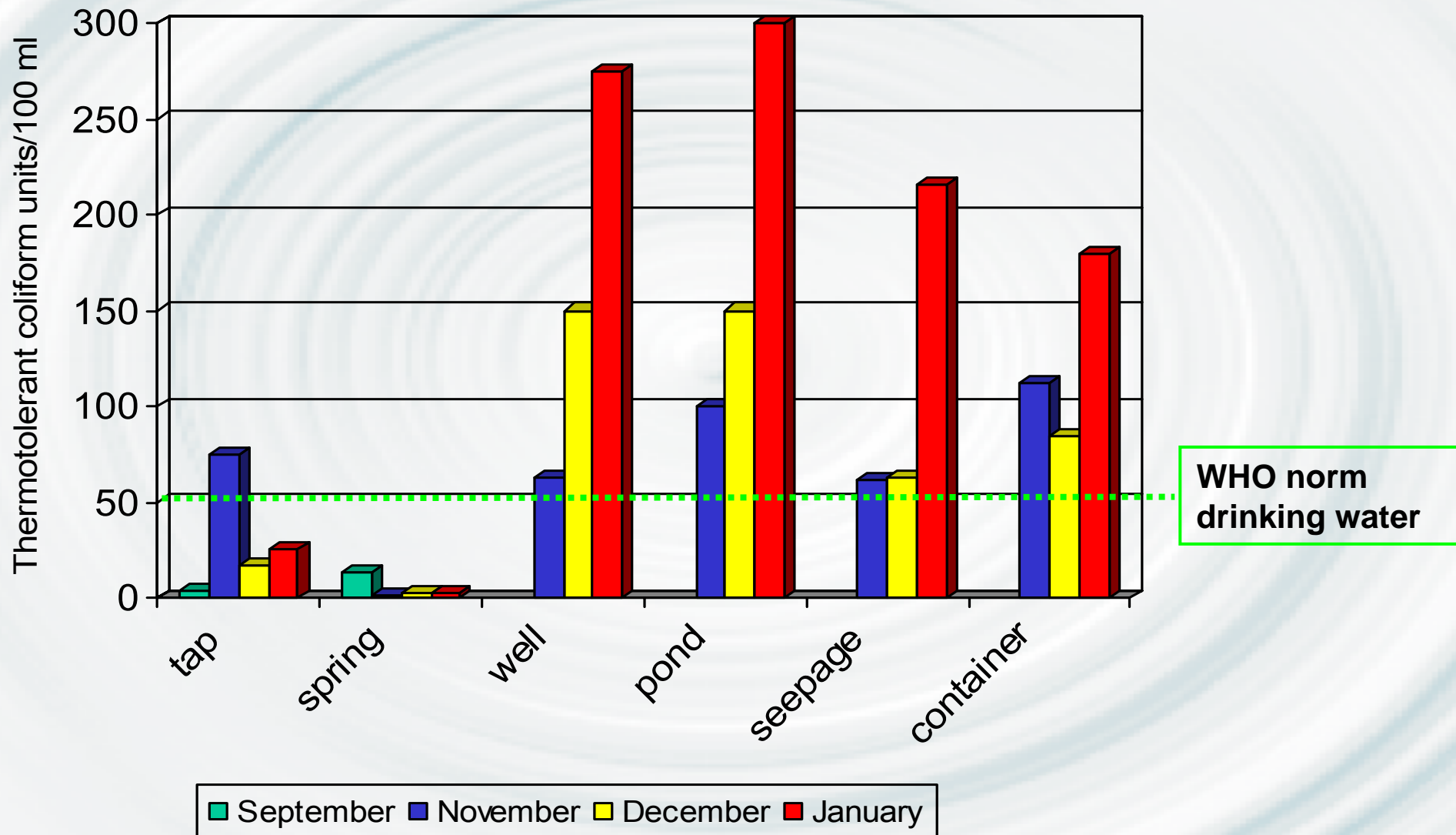
Indirect benefits

- Women: time for milk group
- Increased income from milk, animals, eggs → improvement housing conditions
- Men: more time (and water?) for crop production
- Cultivation of papaya for home consumption and market
 - Learning through children
- Well-organized water association
 - People learned to organize themselves
 - Alternative to saving through livestock: bank account!

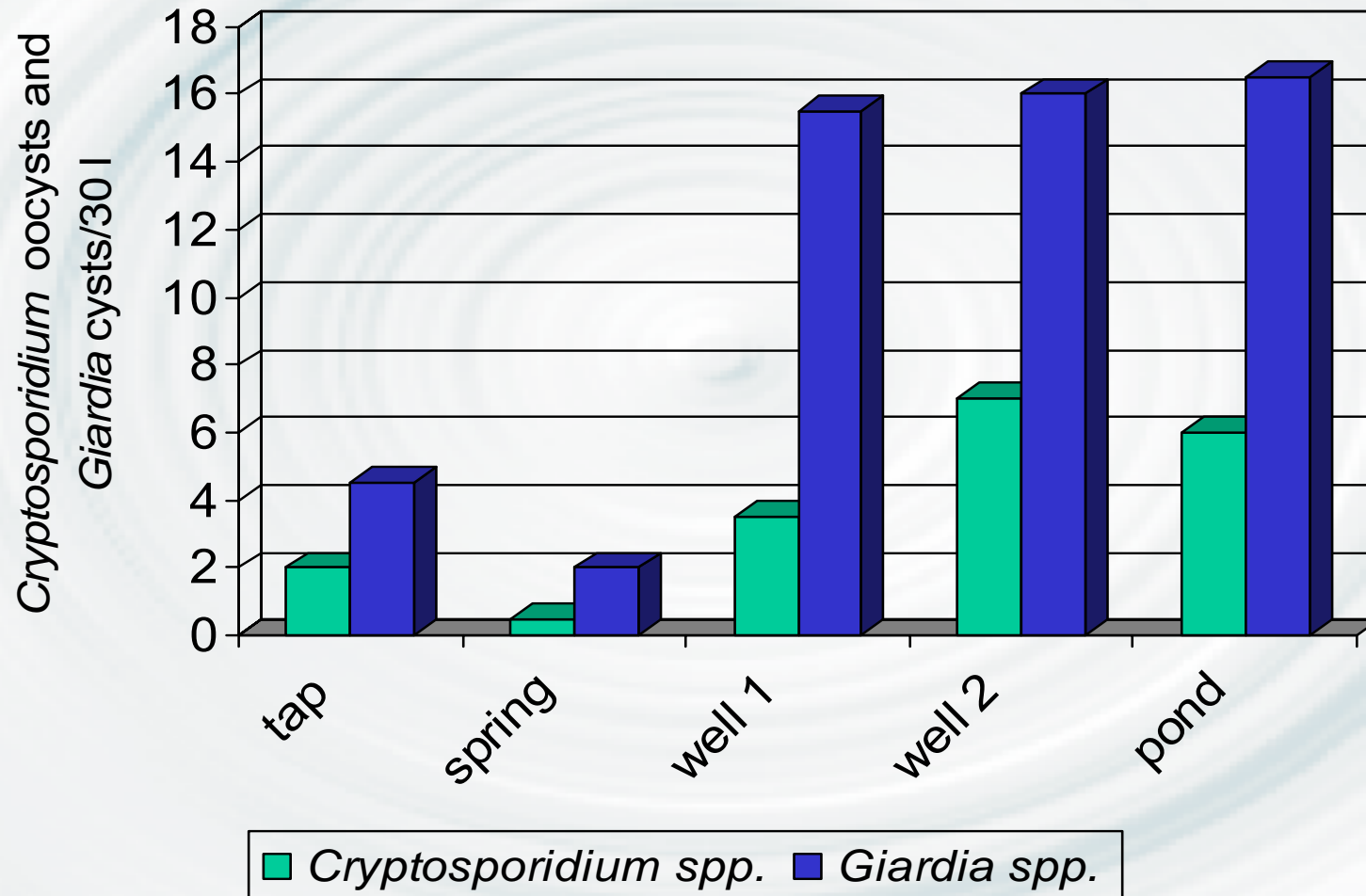
Water quality analysis I

- Below WHO guidelines for
 - EC, chloride
 - pH, CaCO₃
 - Nitrate
- Sulfate concentrations exceeded standards in December/January with 10-15% in open wells and seepage wells
- Over WHO norms for
 - Bacteria (except tap and spring)
 - Parasites
- High contamination after source

Water quality analysis II



Water quality analysis III



Water quantities

- Best quality water from borehole and protected spring
 - Sufficient quantity for drinking
 - Borehole: 1.6 l/s during 10 h = 57,600 l/day for 3,000 people in 4 villages = 19.2 lpcd
 - Protected spring: 0.8 l/s during 24 h = 69,120 l/day for 1000-2000 people > 15 lpcd
- Water for livestock good enough and sufficient in water harvesting ponds
 - Tap and wastewater for young animals
- Not sufficient water for irrigation

Institutional gap

- Project handed over from NGO to community, with support from ???
- Reorganization of Dire Dawa District Administration
- Regional Rural Development Co-ordination Office
 - no mandate yet
 - new staff
- Water, mines and energy office
 - Technicians reassigned to the Road Authority
 - No (human) resources for field visits and monitoring
 - No funding for projects

Key constraints

- Institutional gap or temporary problem due to re-organizations?
- Communication
- Persistent food insecurity
- Dependency on donor
- Bad road, poor access to markets
- Water system not adequate in dry season



3. Options for improvement

- Strong community: made request for project
- Re-division of Peasant Associations
- Suggestions



Re-division of PA

- Re-dividing Peasant Associations of Lege Dini, El Hamer and Ayale Gungun - difficult to govern??
- Opportunity: PA administrative cabinet
 - 6 persons
 - Chairman, vice-chair and security person elected by community
 - 3 representatives assigned by government:
 - rural development sector
 - capacity building/education sector
 - health sector
 - Potential for integrated approaches and implementation of true multiple use system

Suggestions I

- Optimization of multiple sources for multiple uses
- Promote and extend water harvesting and reuse of water
- Water treatment for contaminated sources:
 - Protection of open sources
 - Appropriate home treatment
- Hydro-geological survey in Ajo (second borehole?)
- Additional reservoir Kora (protected spring)
- Development emergency plan

Suggestions II

- Capitalize on benefits
 - Income generation
 - Organizational skills
- Water committee
 - Follow-up training
 - Basic education including for book keeping
 - Autonomy for O&M
 - Broader scope
- Coordinate & improve education / extension activities for increased effectiveness

Multiple use of water in Legedini

THANK YOU

