

Introduction of Arsenic Biosand Filter Project for Rural Nepal

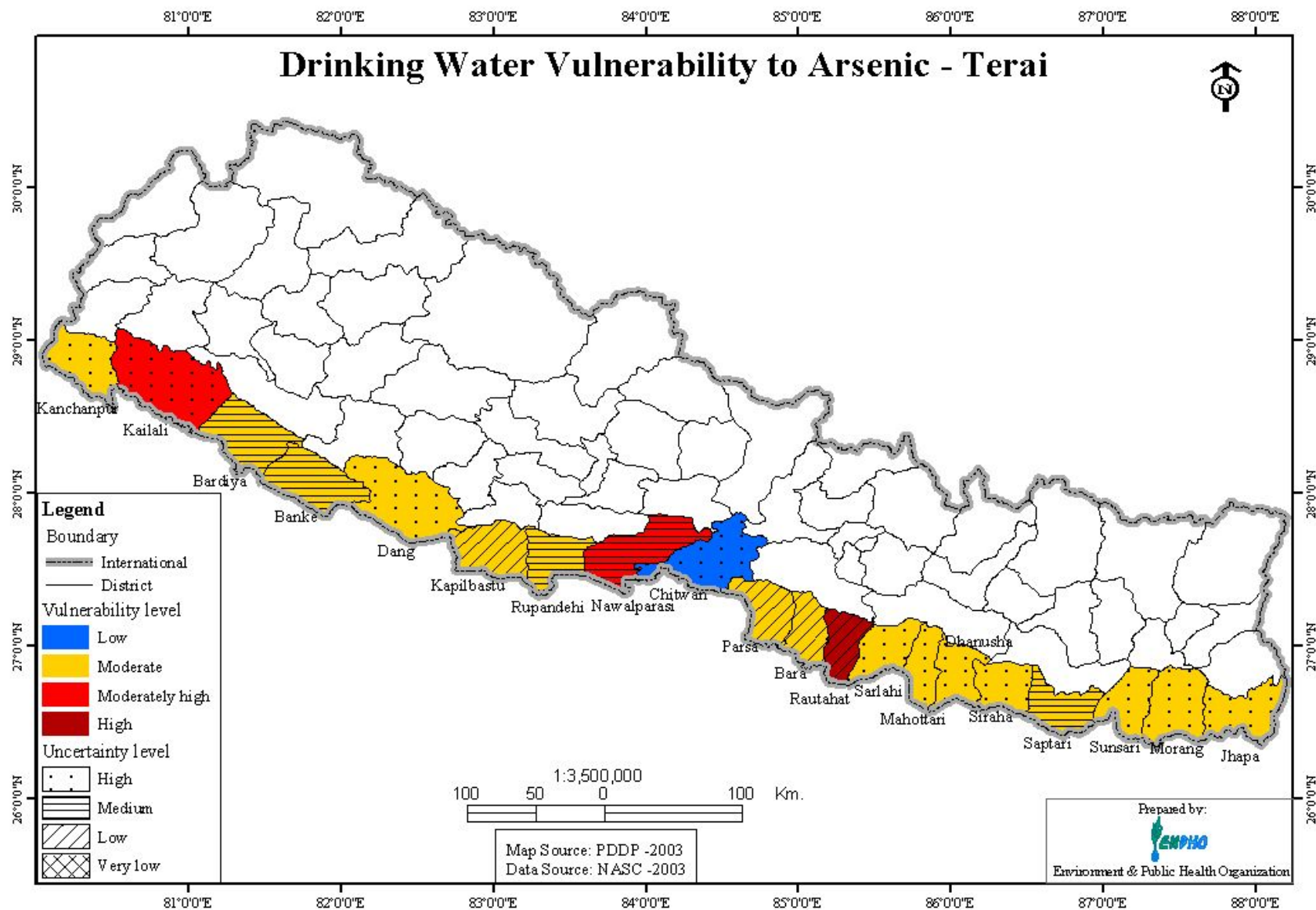
25th May 2004

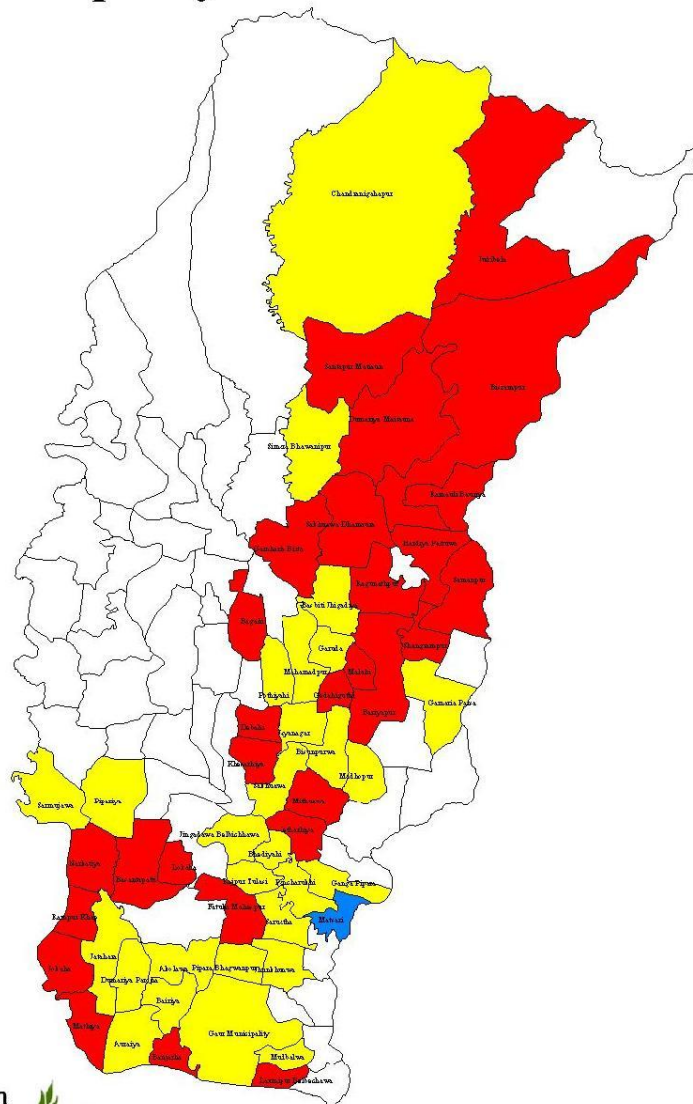
Environment & Public Health Organization (ENPHO)

Rural Water Supply and Sanitation Support Program (RWSSSP)

Massachusetts Institute of Technology (MIT)

Drinking Water Vulnerability to Arsenic - Terai





 No risk
 Medium risk
 High risk

☐ NRCS-TW not installed VDCs

Drinking Water Quality Improvement Program
Nepal Red Cross Society/Environment & Public Health Organization

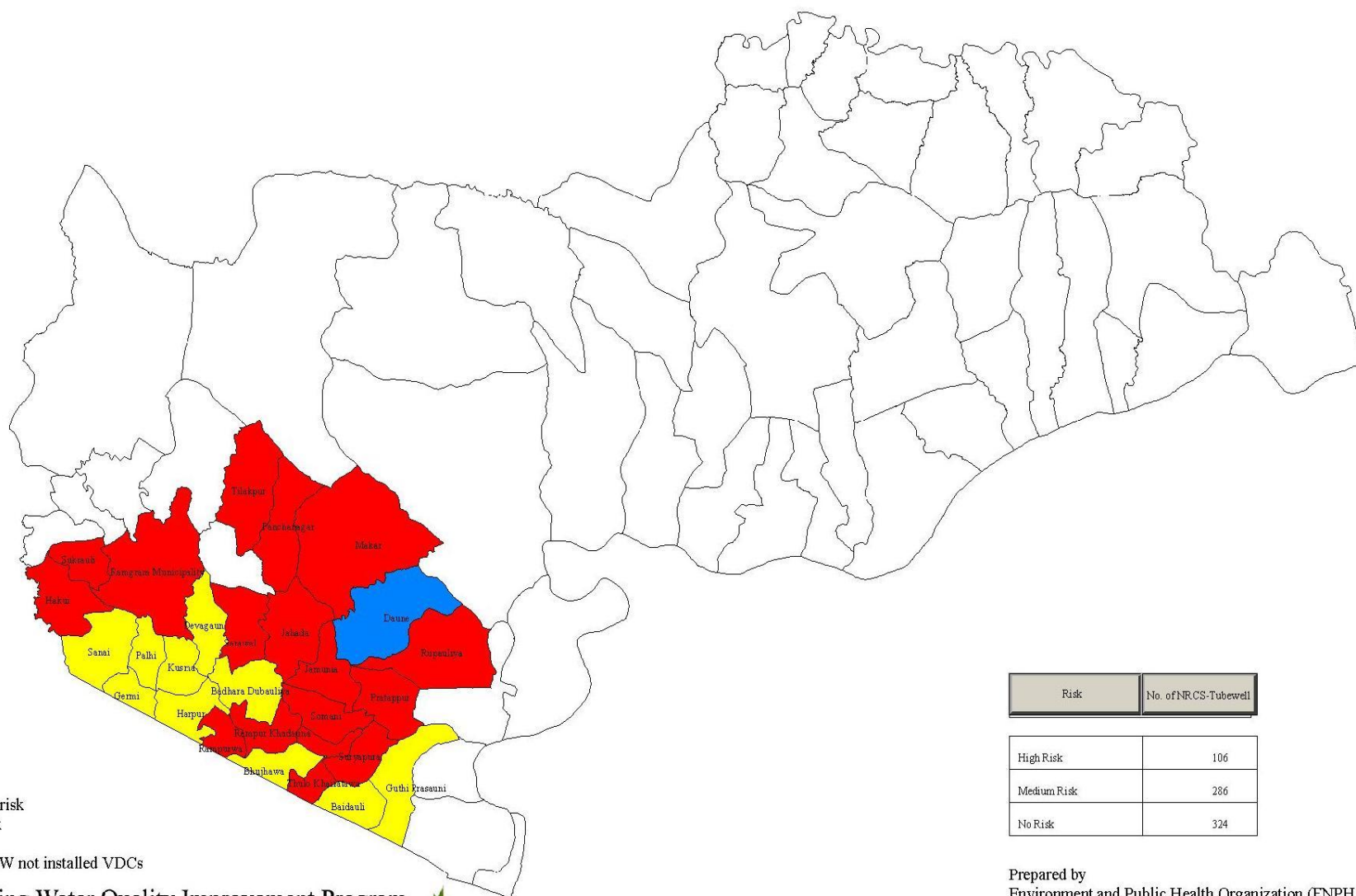


Risk	No. of NRCS-Tubewells
High Risk	193
Medium Risk	904
No Risk	668

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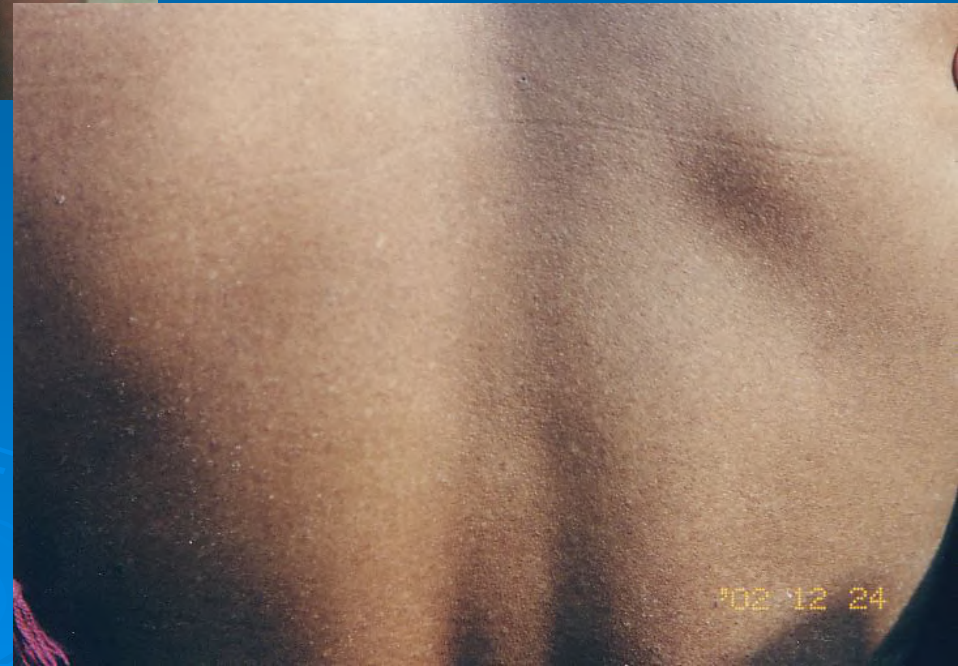


Arsenic Risk VDCs/Municipality in Nawalparasi based on NRCS-Tubewell





Person with Melanosis
found in Parsa District

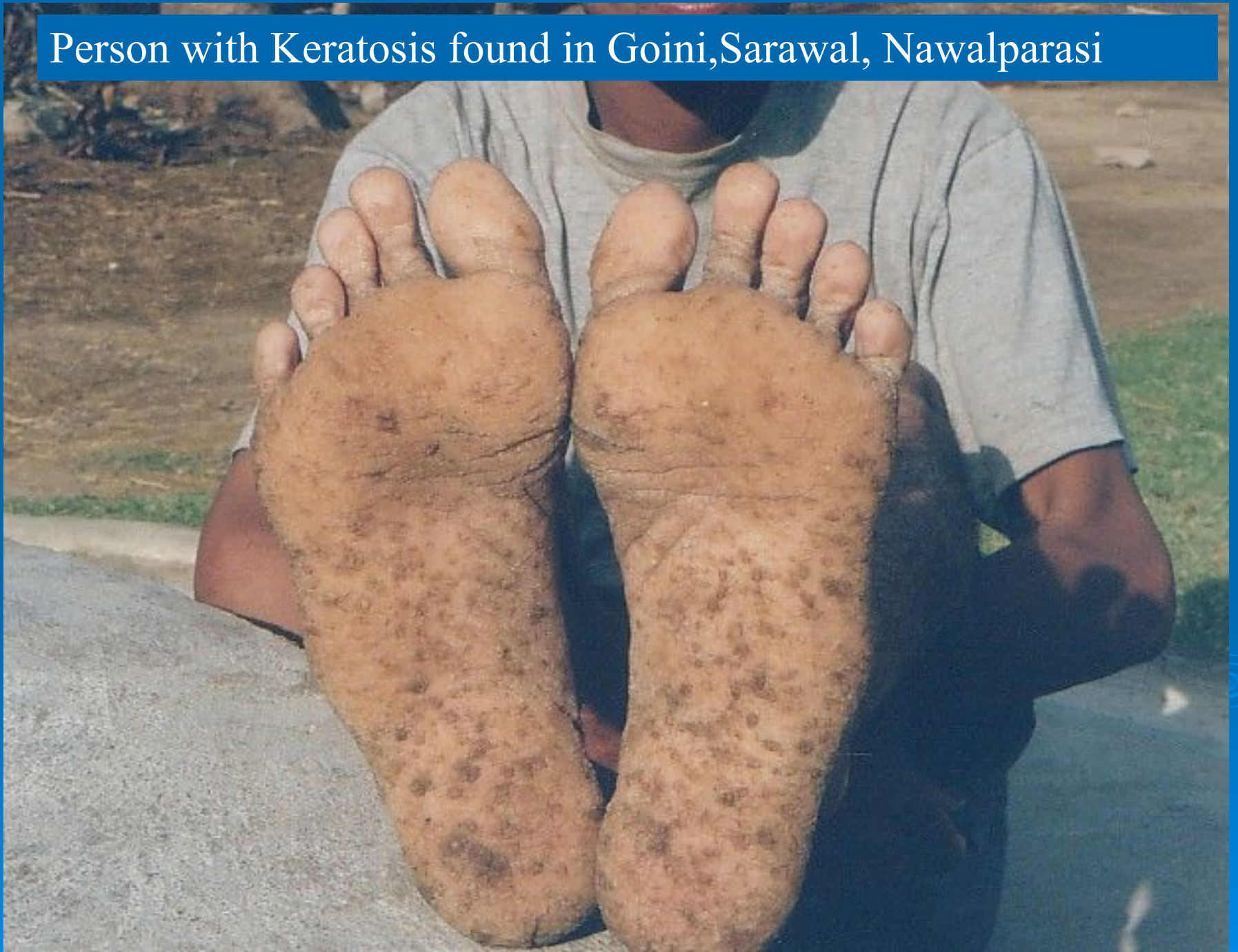




Person with initial
stage of Keratosis
found in Parsa
District



Person with Keratosis found in Goini, Sarawal, Nawalparasi



Alternative Options



Safe Water Options Practiced in Nepal

- Arsenic Safe Tube well
- Dug wells
- Gravity flow Water Supply
- Different types of household level Arsenic Removal Options



Dugwell as alternative option







Household Arsenic Removal Filters



ENPHO Two Gagri Filter



Chemical packet contains:

- Ferric chloride (coagulant)
- Sodium hypochlorite (oxidant)
- Charcoal (adsorbent)



Raw Water



Mixing & Settling

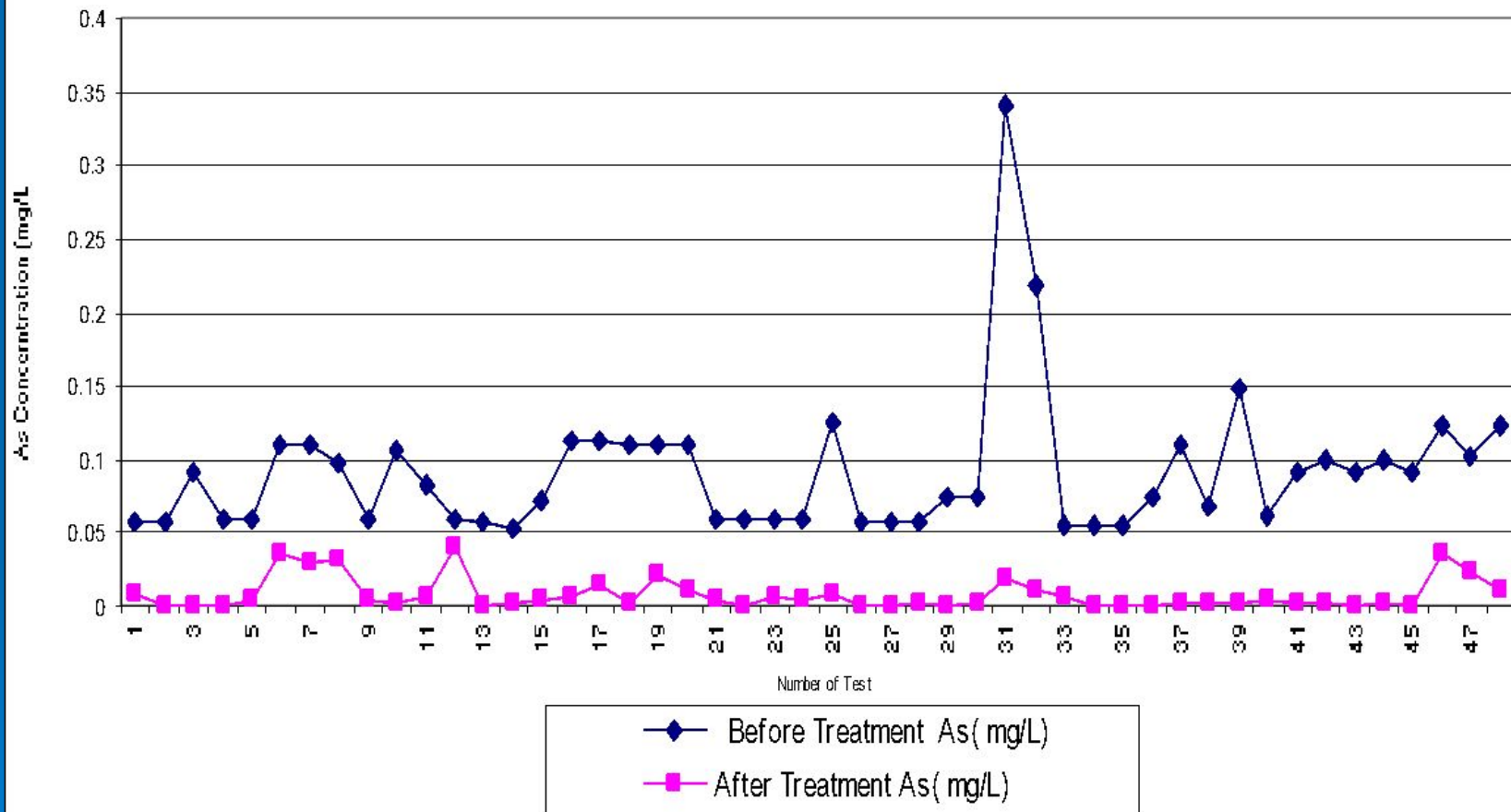


Filtration (ceramic filter)

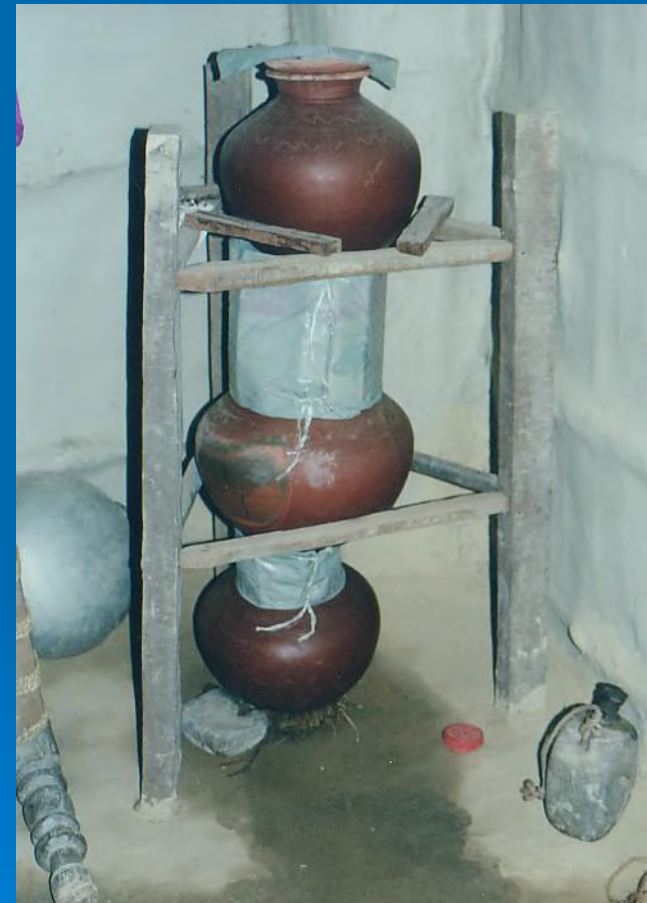
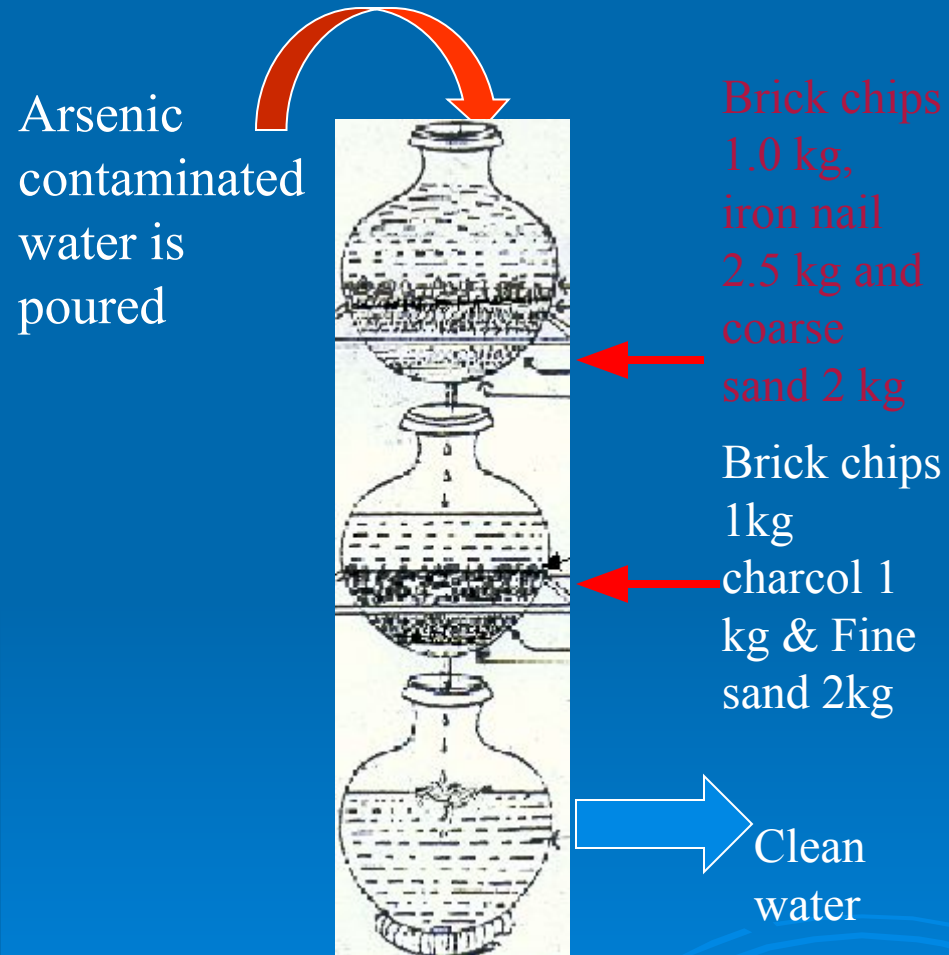
Treated Water



**Graph.1.Arsenic Removal Efficiency of Arsenic Removal Powder
Produced by ENPHO**

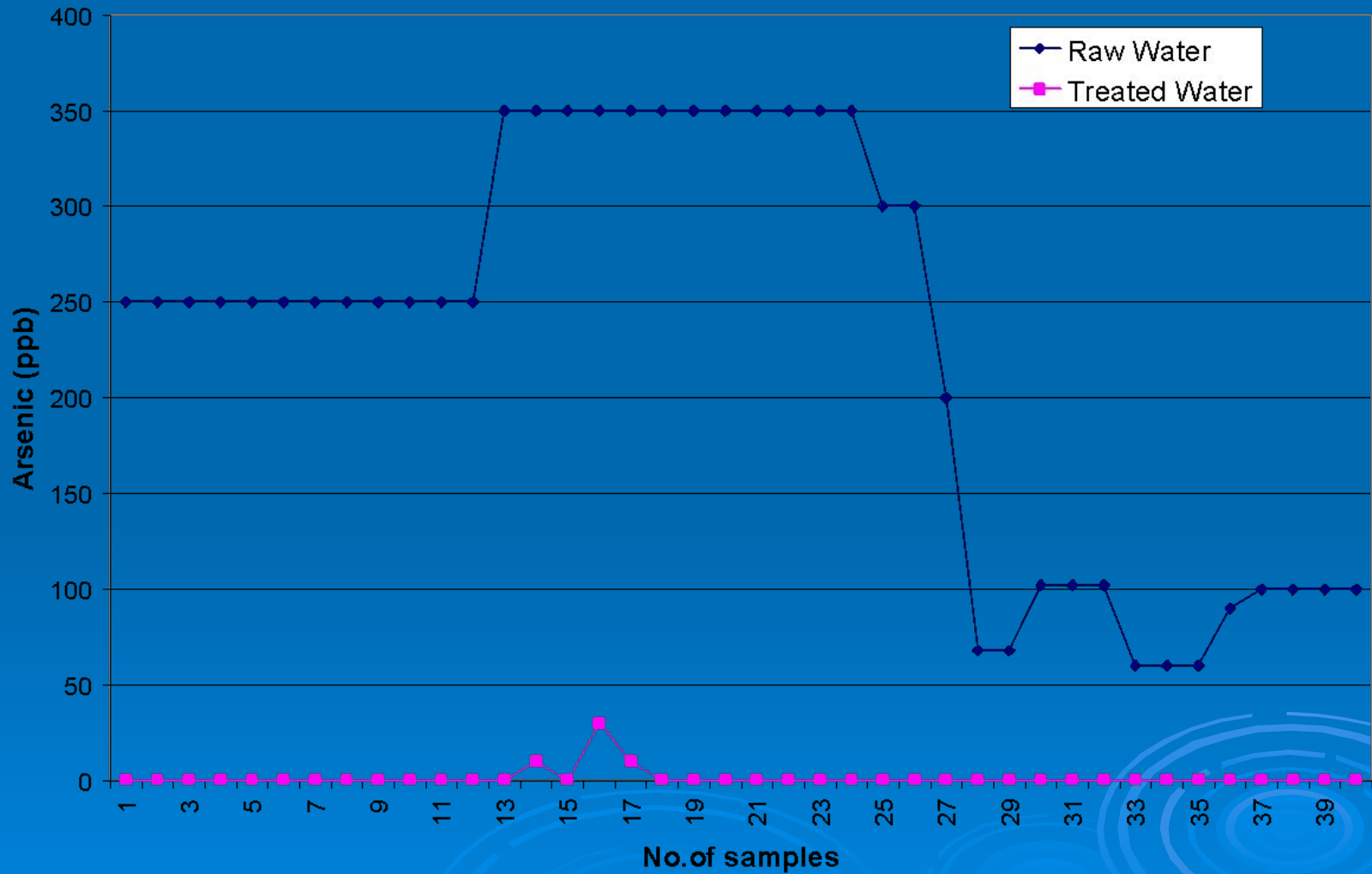


Three-Gagri System



Treatment Process: Adsorption, Precipitation, and Filtration

Efficiency of Three Gagri Filter



Arsenic Biosand filter



Arsenic Biosand Filter Project for Rural Nepal

- Awarded in DM2003 Competition of World Bank, December 2003
- DM 2003 – Global Competition for innovative ideas
- Project Partners : MIT, ENPHO and RWSSSP
- Project Period : February 2004 to December 2004
- Fund : 115,000 USD



Activities

- ❑ Set up Arsenic Biosand Reference Center
- ❑ Facilitate to establish local entrepreneurs in all arsenic-affected districts
- ❑ Train local entrepreneurs to assemble filters
- ❑ Identify plastic manufacturer who can produce plastic ABF
- ❑ Select and conduct intensive training in 30 arsenic-affected VDCs (“model VDC”) for promotion of filters at village level
- ❑ Conduct additional studies on technical performance and social acceptability of the filter for further improvement in preparation for a even wider implementation
- ❑ Promote the filter not only at national but also at international level

Thank you!

