Bio Sand Filters

"Economic, sustainable, non-electric, reliable and safe water filtration system"

Energy Efficient Woodstoves

"Less wood, less smoke, cleaner kitchen, environmentally friendly cooking for women

Hydram

"Economic, sustainable, non-electric, reliable means to pump water upstream for drip irrigation"

Char Briquettes

"Alternative to coal, efficient energy for cooking, alternative livelihood for communities"

Climate Friendly Technologies

Demonstrated by Laya for marginalized communities

Laya

BIO-SAND FILTERS

THIS IS

IS A POINT-OF-USE WATER TREATMENT SYSTEM ADAPTED FROM TRADITIONAL SLOW SAND FILTERS. UNFILTERED WATER IS POURED FROM ABOVE WHERE PATHOGENS AND SUSPENDED SOLIDS FROM WATER ARE REMOVED USING BIOLOGICAL AND PHYSICAL PROCESSES THAT TAKE PLACE IN THE SAND COLUMN COVERED WITH A BIOFILM.

CAN REPLACE

TRADITIONAL FILTRATION METHODS AND WATER BOILING TO ENURE POTABILITY OF WATER FROM BORE-WELLS, OVERHEAD TANKS AND STREAMS ACCORDING TO WORLD HEALTH ORGANIZATION (WHO) STANDARDS.

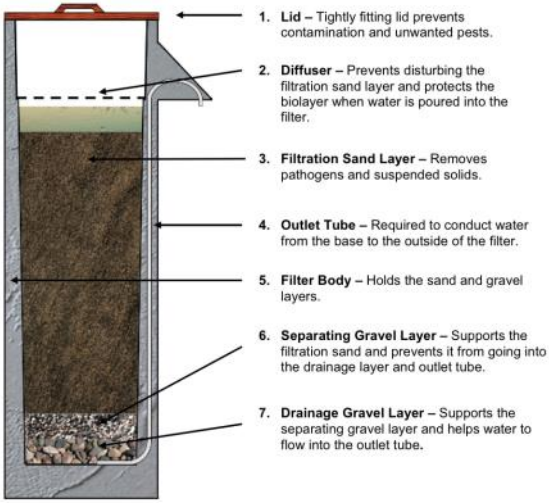
HOW ITS MADE

THE CONTAINERS ARE CONSTRUCTED MANUALLY BY MEANS OF A PRE-FABRICATED MOULD. SAND AND GRAVEL IS PROCURED FROM LOCAL QUARRIES. THE DIFFUSER PLATE AND LID IS MADE IN METAL WORKSHOPS.

TECHNICALLY

TOP TO BOTTOM; 1. 0.7 MM CRUSHED QUARRY SAND (SAND BED 21 INCHES) 2.6MM GRAVEL (SEPARATION BED 2 INCH- ES) AND 3. 12 MM GRAVEL (DRAINAGE BED 2 INCHES) PLACED IN THE CONTAINER IN LAYERS.

A DIFFUSER PLATE IS USED AT THE TOP TO ENSURE WATER LANDS GENTLY ON THE BIO-SAND LAYER.



COST @

RS 3000-4000/- PER UNIT

CONSTRAINTS

THE CHIEF HURDLES RELATE TO THE AVAILABILITY OF CRUSHED QUARRY SAND AND TRANSPORTATION OF THE 80 KGS WATER FILTER CONTAINERS TO REMOTE VILLAGES.

USED FOR

THE COMMUNITY GETS ACCESS TO POTABLE DRINKING WATER OF HIGH QUALITY.

ENERGY EFFICIENT WOODSTOVES

THIS IS

The efficient woodstoves comprise a basic stove, a draft access for efficiency of cooking and a piped outlet which acts as a chimney.

CAN REPLACE

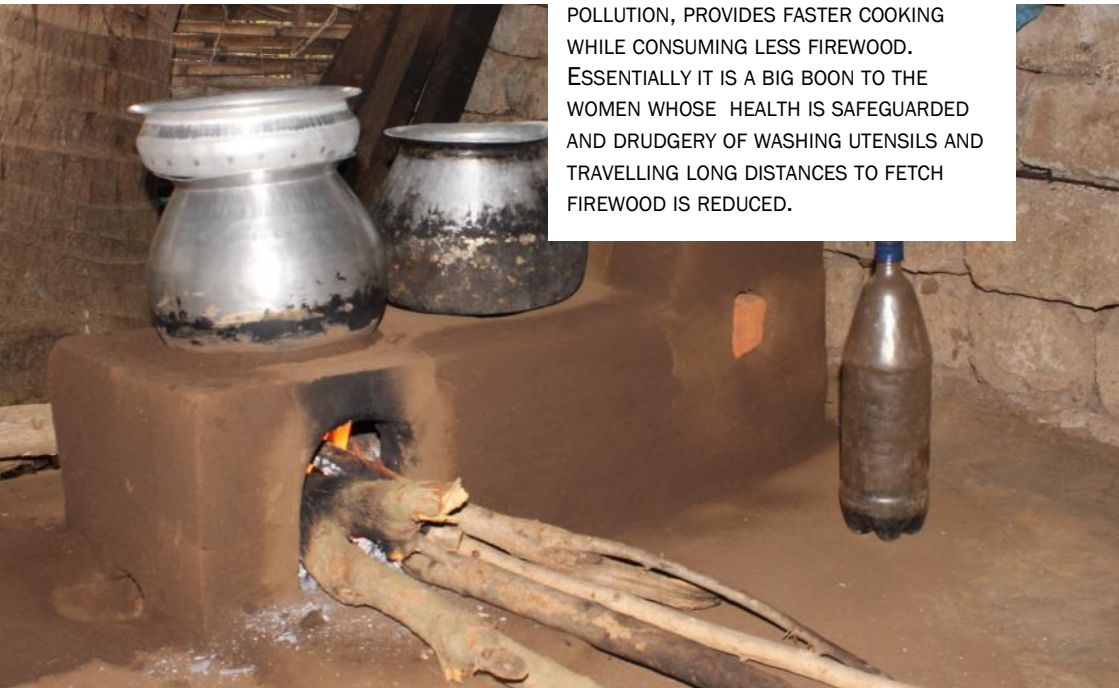
Improved woodstoves replace traditional polluting and energy inefficient woodstoves.

HOW ITS MADE

The stoves are locally produced with trained stove builders. The community prepares the clay needed for the stove.

USED FOR

The cookstove avoids extensive indoor pollution, provides faster cooking while consuming less firewood. Essentially it is a big boon to the women whose health is safeguarded and drudgery of washing utensils and travelling long distances to fetch firewood is reduced.

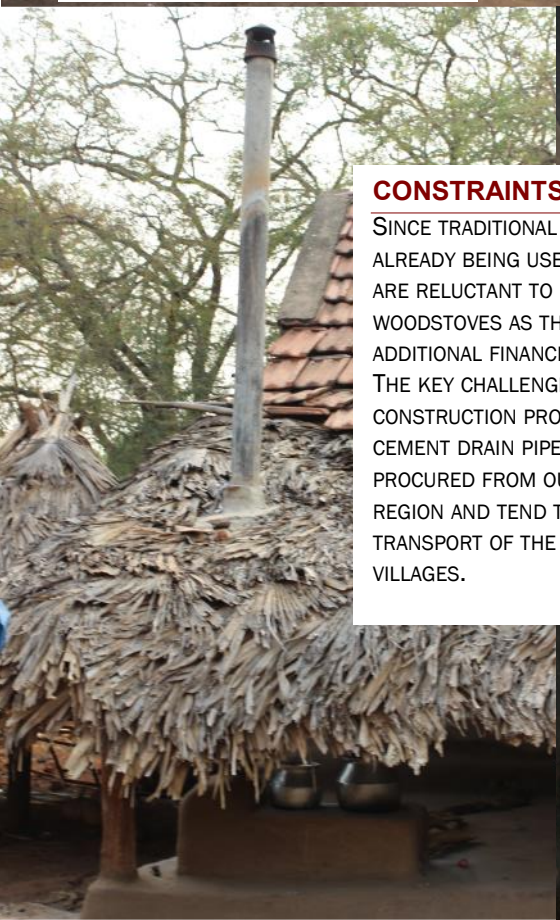


COST @

Rs 800 - 950/- per unit

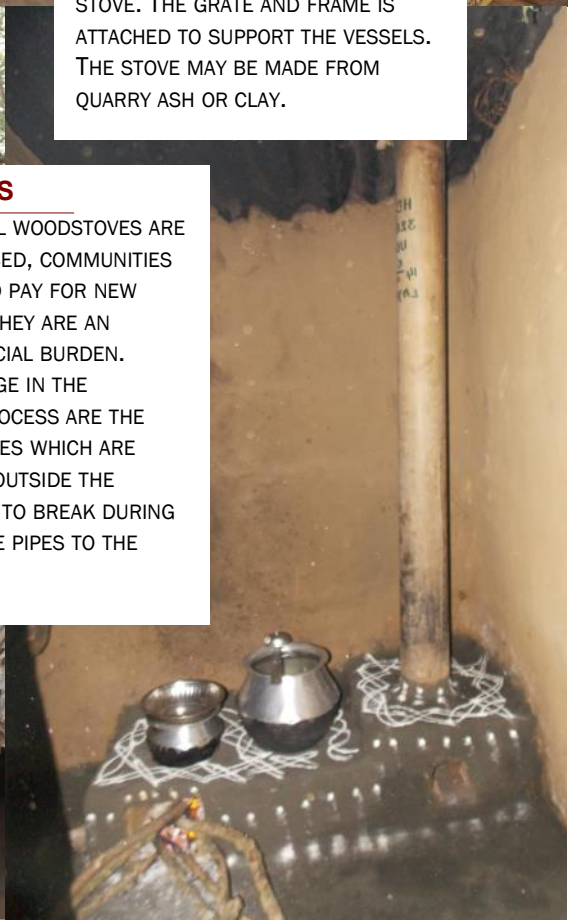
TECHNICALLY

The stove is constructed with a pre- fabricated mould. A chimney (cement drain pipe) is fixed to the stove. The grate and frame is attached to support the vessels. The stove may be made from quarry ash or clay.



CONSTRAINTS

Since traditional woodstoves are already being used, communities are reluctant to pay for new woodstoves as they are an additional financial burden. The key challenge in the construction process are the cement drain pipes which are procured from outside the region and tend to break during transport of the pipes to the villages.



HYDRAM

THIS IS

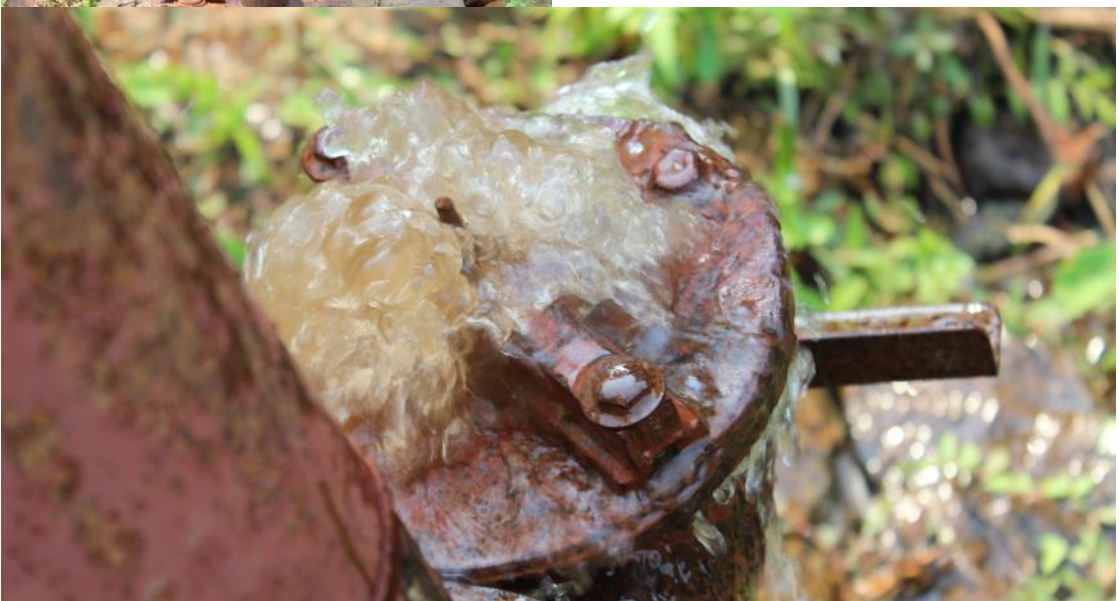
A HYDRAM COMPRISES A RELATIVELY SMALL PUMP THAT CAN LIFT SMALL QUANTITIES OF WATER BY USING LATENT GRAVITY OF FLOWING STREAMS.

CAN REPLACE

THE HYDRAM REPLACES DIESEL/ELECTRIC PUMPS TO LIFT WATER.

HOW ITS MADE

THIS TECHNOLOGY REQUIRES A BASIC FEASIBILITY STUDY OF STREAM FLOW AND POTENTIAL ACCESS TO THE VILLAGE. A PIPE LINE FEEDING WATER INTO THE PUMP IS CONSTRUCTED AND A PVC PIPE NETWORK IS CONNECTED TO AN OVERHEAD PLASTIC TANK. WATER IS MADE AVAILABLE THROUGH TAPS OR THROUGH A DRIP IRRIGATION SYSTEM.



CONSTRAINTS

This system is site specific and may not be suitable in every situation.

USED FOR

The community gains access to water for basic household use as well as for drip irrigation where possible.

TECHNICALLY

A 1 meter drop (head) can discharge water up to 10 meters.

COST @

Rs 1 - 2.5 Lakh- per site/
Rs 15000/18000 Pump

Char Briquettes

THIS IS

These briquettes have been developed from bio - mass growing abundantly and unwanted wild weeds which are considered to be a menace in the region.

CAN REPLACE

These bio mass based briquettes are a good alternative to charcoal.

USED FOR

The briquettes fulfill the energy needed for cooking and heating in those regions where charcoal is being utilized.

HOW ITS MADE

Bio-mass is charred in drums. The resulting char, is then dried and compressed into cakes through a machine run by a motor.

TECHNICALLY

Requires drums with a capacity of 200 liters, a 1 HP motor and modified meat mincer.

COST @

To setup Rs 50,000; Production Price Approx Rs 15 - 20 /- per kg

CONSTRAINTS

The key challenge is to produce and market briquettes in large quantities.

SOLAR LANTERNS

THIS IS

Solar lanterns operate through solar panels and stored battery systems. These lanterns provide lighting services and are mobile.

CAN REPLACE

Solar lanterns replace kerosene based lighting systems.

HOW ITS MADE

They are purchased from manufactures directly. However local training on technical aspects adds tremendous value to the sustainability of the lanterns.

USED FOR

Mainly utilized for household lighting, hunting and protecting fields during harvest.

CONSTRAINTS

The key challenge involves maintenance of lanterns as the components are procured from outside the local region. The lanterns require periodic replacement of batteries.

TECHNICALLY

Works for 12 – 20 hours for a day's charge (morning to evening sunny day).

COST @

Rs 1400 - 2000/- per unit

MICRO-HYDRO

THIS IS

Based on a site feasibility study, a stream is diverted through a channel. At an appropriate point water is dropped through a pipe (penstock) using a tank (forbay). The dropped water turns a turbine that is connected to a generator that produces electricity. This electricity is balanced with a load controller and then distributed to the village.

CAN REPLACE

A micro - hydro can be a source of electricity even if the village is not connected to a grid system. Essentially it replaces kerosene based lighting.

HOW ITS MADE

A check dam, siltation and forbay tank, penstock and powerhouse need to be constructed. A turbine and generator along with a load controller needs installation. The process normally takes 9 to 12 months.

TECHNICALLY

It is site specific. The power generation ranges from 2 to 25 kilo watts (kw).

USED FOR

Household lighting and/or income generation activities that require electricity.

USED FOR

Varies according to site. Construction cost Approx 1.5 Lakhs per Kilowatt

CONSTRAINTS

This technology is site specific. It is initially capital intensive and requires the assistance of a professional engineer.

TECHNOLOGIES FOR AYURVEDIC HERBAL MEDICINE

THIS IS

Ayurvedic based medicines are prepared through the support of machines like pulverisers, grinders, small flour mills and solar driers.

CAN REPLACE

This system provides alternative options in a region where the allopathic system is very difficult to access.

HOW ITS MADE

Involves setting up a licenced Ayurvedic based health pharmacy with a pulveriser, grinder, sieve, small flour mill and solar drier. Added to this is a packaging unit.

USED FOR

THIS FULFILLS THE COMMUNITY NEED OF ACCESS TO BASIC HEALTH CARE FROM LOCAL PLANT RESOURCES AND KNOWLEDGE SYSTEMS.

TECHNICALLY

THE PULVERISER, SIEVE AND GRINDER IS MOTORED BY A 3 HP MOTOR AND 2 HP MOTOR.

CONSTRAINTS

THIS SYSTEM IS NOT ADEQUATELY SUPPORTED BY LOCAL GOVERNMENT AUTHORITIES.

COST @

CAPITAL COST RS 3 LAKHS, RUNNING COST APPROX RS 1 LAKH PER YEAR

WHO WE ARE

Laya Resources Center has been working with adivasi or indigenous communities based in the scheduled region of north Andhra Pradesh, India since 1985. The communities in this region are cash poor in spite of having a rich natural environment. They continue to face several issues; land alienation, indebtedness, limited access to health care, market exploitation, human right violations, dispossession of land for large development projects and limited access to energy.

Our response to these issues has been integrated through the work of our various units; Safeguarding Human Rights; Ayurvedic Herbal Health Care; Sustainable Farming; Micro - enterprise; Youth and Women's Empowerment; Sustainable Technologies and Climate Change.

Further details of our work, may be accessed from our website www.laya.org.in. Laya is also the secretariat of a national network Indian Network on Ethics and Climate Change (INECC).

Laya is empaneled with the Ministry of New and Renewable Energy (MNRE) and the National Corporate Social Responsibility (CSR) Hub, Tata Institute of Social Sciences (TISS). Laya also has special consultative status with the United Nations Economic and Social Council (ECOSOC).

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INECC is a national network of organisations and individuals who connect on the issue of climate change from the perspective of marginalised communities.

It was formed in 1996 at the initiative of a few development practitioners who saw the link between the climate change crisis and the larger issues of sustainable development and social justice.

INECC works to bring climate change and sustainable development concerns of the marginalised majority into policy dialogues.