Basic Shit prototypes

Our prototypes explore design innovation in the areas: mobile urinals, unisex urinals, culturally specific designs, gendered urinal designs, water conservation, sustainability, natural – nontoxic, odor control, low-maintenance, self-cleaning, and foot-operated designs.

### BASIC URINAL DESIGN, Unisex

- Urinal with hand wash
- Sun Board - Design for the flow
- Hand wash

### BASIC URINAL DESIGN, with handwash

- One Screw installation.
- Light Bulb or Ball for Oder trap.
BASIC URINAL DESIGN - Natural – Nontoxic, Odor control

Light Bulb or Ball for Odor trap

BASIC URINAL DESIGN - Mobile

Mobile urinal

Handwash

Foot operated
Human urine contains 80% of Nitrogen and 50% of Phosphorous. People do urine therapy doctors recommend that.

From the food we eat is excreted via urine. Therefore, urine is a source of nitrogen needed by plants to grow. Relative nitrogen components such as Urea, Ammonia, Nitrate are essential for the growth of plants.

Controlling odor and protecting the environment are important. Methods of urine application include:

- **UrineCompost**
  - Producing fertilizer from human urine is essential for the environment.
  - Handled or stored urine releases ammonia into the atmosphere.
  - If large amounts of relative nitrogen enter the ground water, it can cause eutrophication.

- **Struvite Harvesting Reactor**
  - High concentration of components can be harmful for humans.
  - Eutrophication due to nutrient enrichment of water bodies should be reduced.

- **Urine Nutrient**
  - Nutrient-depleted or depleted areas can be enriched by applying urine.
  - A large amount of nitrogen contained in urine is beneficial for crops.
  - Water bodies can be enriched with urine for agriculture.

- **Amonia Smell**
  - Ammonia combined with pollutants and air movement can cause odor.
  - Ammonia can travel deeply in the atmosphere.

**URINAL DESIGN**

1. **Membrane Traps**
   - Cartridges need to be replaced or cleaned when precipitates of urine are formed.
   - Membrane traps manufactured by Keramag and Addicom, imported by Shital Ceramics, are suitable for low-end urinal pans.

2. **Deep Injection**
   - Urine can pollute the air when not properly handled.
   - Regular replacement of cartridges and membranes reduces maintenance cost.

3. **Condoms**
   - Condoms with trimmed ends can be used as a temporary urinal.
   - Any urinal can be made waterless using bio-devices.

4. **Condoms - The low-cost portable and ready-made urinal**
   - The contents of the urinal can be stored in a polypropylene drum for disposal.
   - This type of urinal is suitable for low-end urinals.

5. **Light Bulb/Table Tennis Ball**
   - These devices can be used for emergency situations as waterless urinals.

**Dose of Urine for Various Crops in India**

- **Festivals**
  - Ziro festivals - Arunachal Pradesh

**Application of Urine Compost**

- **Drums for Urine Compost**
  - Use of watering cans is common in festivals like Vasundhra music festival - Goa.

**Valves**

- Valves have properties although the production is local.
- Valve seals are similar to rubber tube seals.
- Washed away owing to urine flow.

**Device to Find Out Smell of the Toilet**

**LEOPARD**

**MANGO**

- Mango 1 month
- Natural

**MADHUMALTI**

**NATURALLY**

**DRUMS FOR URINE COMPOST**
Human urine contains 80% of Nitrogen and 50% of Phosphorous from the food we eat is excreted via urine. Therefore, urine is the fluid excreted by the kidneys. It consists of water, Nitrogen, and other minerals. A person urinates about 1.5 litres per day.

When large amount of Urea or urine reaches to the open body, it can pollute the air. When urine is not properly handled or stored, it releases ammonia into the atmosphere. Large scale harmful release of nitrogen into the environment can deplete the ozone layer and pollute aquatic life.

Nitrogen is essential element of whole living things, as a urea. We also receive nitrogen from the food we eat. Fertilizers are produced from human urine to reduce harmful aerosols and pollution from industrial, vehicular, and other sources.

Producing fertilizer from human urine is important to the environment. This fertilizer can enrich nitrogen levels in plants, improving the quality of cultivated crops. High concentration of both components, Nitrogen and Phosphorous, is harmful for humans. Therefore, it is important to find a sustainable method to treat and utilize human urine.

Struvite is formed when magnesium reacts with both urea and urine. This compound can be filtered out and used in the composting process. Struvite is useful for growing vegetables and flowers in the composted soil. It also reduces the risk of eutrophication, a process where water bodies lose their oxygen due to excessive input of nitrogen and phosphorous. Eutrophication can harm aquatic life and deplete oxygen levels in water.

A urinal is available in the market from Keramag and Addicom. It is washable and can be used in many different locations. The urinal requires complex injection moulding for manufacturing, and the maintenance cost is higher. But it can save water and the same water which is washed away owing to the urine flow can be used as a urea. Condoms with the end trimmed can be used to block the urine from entering the trap. A bio-block costs Rs.20/- and lasts for 2-3 months. A low-cost urinal can be made by adding magnesium chloride to urine. It can be used for last for a month.

Fertilizers rich in valuable plant nutrients can be considered liquid substances. Most of the nutrients absorbed by the human body are carried in solution the body's waste products and excess substances. The urine and waste matter are efficiently handled by using urinals. The system works with a sealant liquid which is made locally. It requires complex injection moulding and the maintenance cost is higher. But it can save water and the same water which is washed away owing to the urine flow can be used as a urea. Condoms with the end trimmed can be used to block the urine from entering the trap. A bio-block costs Rs.20/- and lasts for 2-3 months. A low-cost urinal can be made by adding magnesium chloride to urine. It can be used for last for a month.

If water is continuously flow after the use its germs free. It can save water and the same water which is washed away owing to the urine flow can be used as a urea. Condoms with the end trimmed can be used to block the urine from entering the trap. A bio-block costs Rs.20/- and lasts for 2-3 months. A low-cost urinal can be made by adding magnesium chloride to urine. It can be used for last for a month.
Human urine contains 80% of Nitrogen and 50% of Phosphorous rich in valuable plant nutrients and can be considered a liquid from the food we eat is excreted via urine. Therefore, urine is carrying in solution the body’s waste products and excess.

**WAHT IS URINE**

A person urinates about 35-40 litres of urine excreted by human beings. **URINE**

- Plant needs Nitrogen to grow.
- 70% of air contains nitrogen.
- Human also needs Nitrogen received from the food they eat.
- Nitrogen in form of 
  \[ \text{N}_2 \]
  \[ \text{N}_2 \text{O}_3 \]
  \[ \text{N}_2 \text{O}_5 \]
- **HOW ITS AFFECTING THE ENVIRONMENT**
  - **EUTROPHICATION**
  - **TERRESTIAL AND AQUATIC**

Nitrogen is essential as a urea. In fresh urine nitrogen is present as a urea. Nitrogen is added to the soil as a urea. If the urine is not properly handled or stored, it releases ammonia into the atmosphere. This process is known as amelioration.

- **PRODUCTION OF HAZARDOUS AEROSOLS**
- **PRODUCTION OF GREENHOUSE GASES**
- **DEPLETION OF THE OZONE LAYER**

When \( \text{NH}_3 \) combines with \( \text{O}_2 \) in the soil, it can form nitrogen oxides (NOx). These gases can react with other chemicals in the atmosphere to form smog. This can lead to decreased air quality and can be harmful to both humans and the environment.

- **POLLUTION OF AQUATIC ENVIRONMENT**
- **TERRESTIAL AND AQUATIC EUTROPHICATION**

Nitrogen in urine can contribute to eutrophication in water bodies. This occurs when too much nitrogen is added to the water, which can lead to the growth of algae. These algae can use up all the oxygen in the water, which can then lead to the death of fish and other aquatic life. Urine can also pollute the air. When urine is not properly handled or stored, it can release ammonia into the atmosphere.

**METHOD OF URINE APPLICATION**

1) **Direct Application**

- **Use of watering cans which are commonly used in urban areas.**

2) **Deep Injection**

- **APPLICATION OF URINE COMPOST**

3) **Drip Irrigation**

**APPLICATION OF URINE COMPOST**

- **This plan we choose from Delhi road side people use to piss directly on this. In Delhi road side this plant is common because its need high amount of nitrogen.**

4) **Co - Composting**

- **URINE can be added to compost to enrich its nutrient values and also for quickening.**

**APPLICATION OF URINE COMPOST**

- **Before**
  - Urine filled with Matka
  - Earth Bucket with bamboo
  - Urine can be added to compost to enrich its nutrient values and also for quickening

- **After**
  - Mango 1 month
  - MADHUMALTI Naturally
  - Ruff n tuff plant.

5) **Light bulb/table tennis ball**

**RESEARCHED METHOD OF URINE APPLICATION**

1) **Direct Application**

- **Use of watering cans which are commonly used in urban areas.**

2) **Deep Injection**

3) **Drip Irrigation**

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**HUMAN URINE FOR VARIOUS CROP IN INDIA**

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3) **Drip Irrigation**

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Nepal project – Struvite production

Design and public art projects