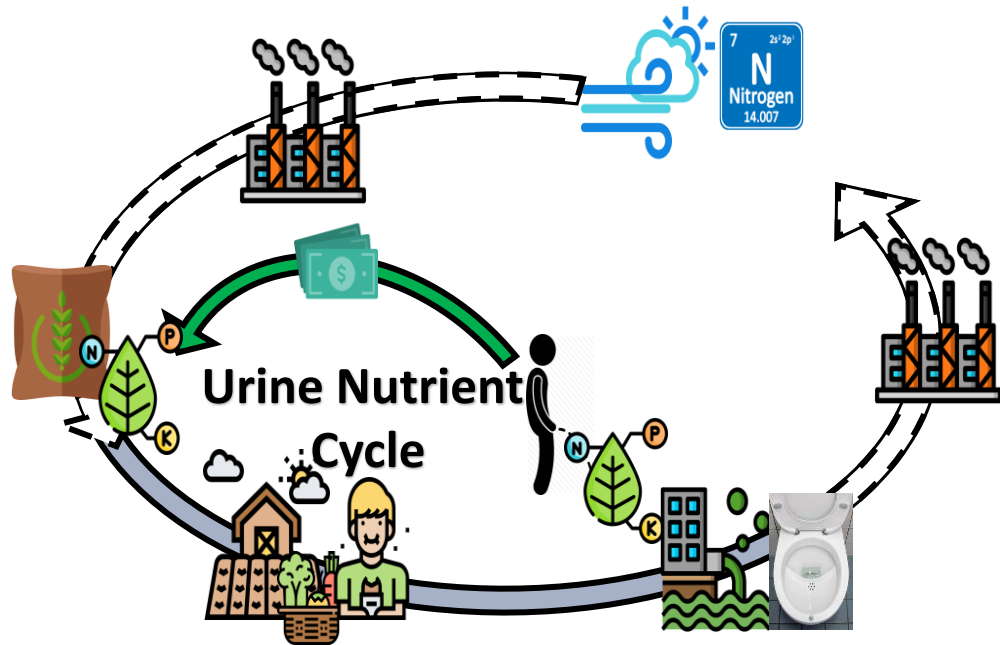


# Nutrients Recovery from Waste



## Turning Urine into liquid gold



### Why

- Human urine is rich in nitrogen ( $5g_N/L$ ), phosphorus ( $1g_P/L$ ), and potassium ( $2g_K/L$ ), which provides a well-balanced fertilizer to many plants.
- Human urine also contains sulfur, magnesium, and calcium, which benefit plants.

### How

- Urinals and Urine Diversion Toilets (UDTs) can separate urine at the source and then urine can be diverted from sewer and stored
- After hydrolysis, Urine is treated through advanced technologies, transforming volatile ammonium into nitrate, eliminating bacteria and pathogens and micropollutants
- Turning urine into fertiliser that can be used in parkland or agriculture

### Benefits

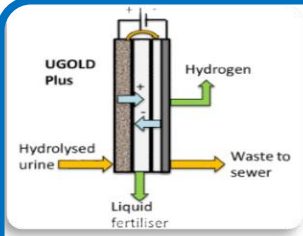
- Reduce the need to flush clean water
- Complete nutrient recovery
- Energy and cost savings for wastewater treatment plants
- Replace or reduce chemical fertiliser mining and usage
- Additional household income
- Self-sufficiency and food security

# Nutrients Recovery from Waste



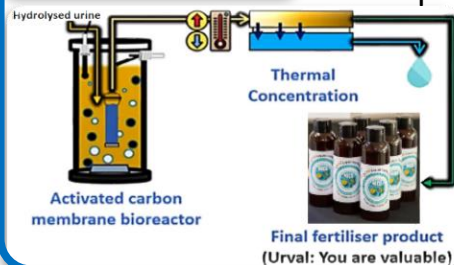
## Urine Hydrolysis

- Chemical reaction takes place in soils and in urine diversion systems.
- Converts urea to ammonia and bicarbonate, results in ammonia volatilization and struvite precipitation.



## Processing

- Ugold Plus is a bioelectrochemical technology that captures nutrients from urine while rejecting bacteria, viruses and pharmaceuticals. It also produces hydrogen as a valuable by-product.



- UrVal or 'U are valuable, Urine is valuable' is a plant fertilizer produced by ultrafiltration (UF) based membrane bioreactor (MBR) followed by dewatering processes.

## Fertiliser Use



For further information visit the ARC NiCE hub Website: [www.nicehub.org](http://www.nicehub.org)

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