

# COMPARATIVE ANALYSIS OF ALTERNATIVE PRODUCTS OF PLASTIC.

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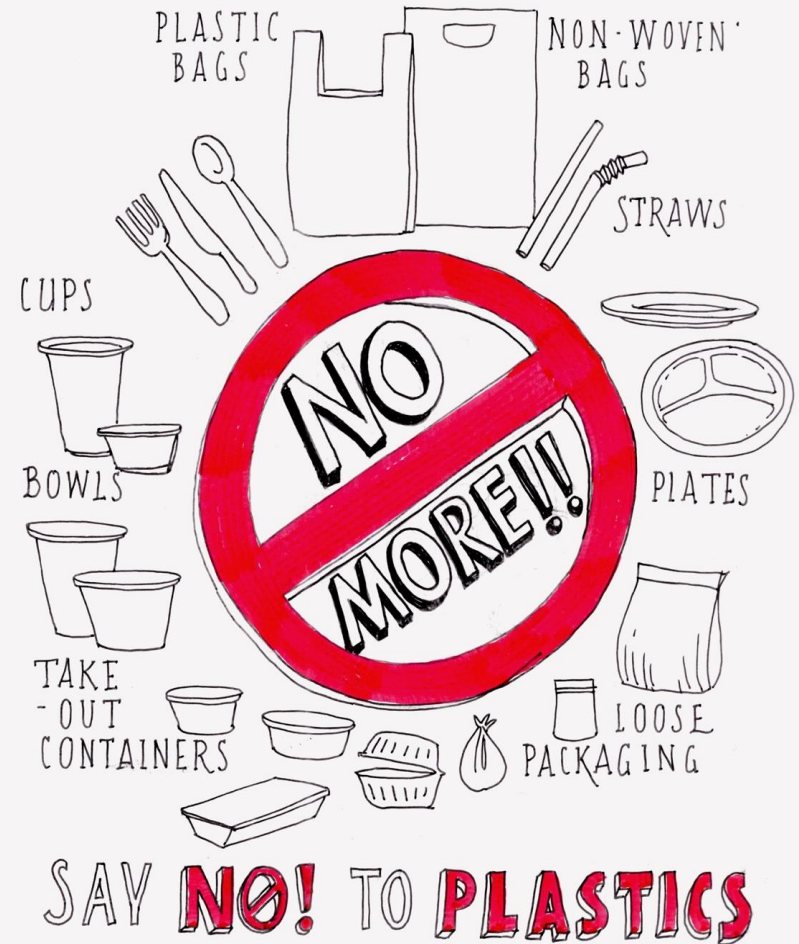
DIVYANSHU PAWAR

VOLUNTEER ECOEXIST.



## ABBRIEVIATION:

- HDPE - High Density Polythylene.
- LDPE - Low Density Polythylene.
- TBT - Tributyl tin.
- LLDPE - Linear Low-Density Polyethylene.
- BPA - Bisphenol A.
- PET – Polyethylene Terephthalate.
- PP - Polypropylene.
- PVC – Polyvinyl Chloride.
- PS – Polystyrene.





# DISPOSABLE VS REUSABLE

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## A CHANGE IN CONSUMPTION

The UseMeAgain campaign aims to replace the

USE and THROW habit with a

REUSE habit.

HOW DO WE CHOOSE AN ALTERNATIVE?



# CRITERIA OF STUDY

Cost per piece/ per pack.	Manufacturing materials.	Advantages.
Size.	Packaging materials.	Disadvantages
Availability.	Convenience.	Brand.
Awareness.	No. of uses.	Green Claims.

# PLASTIC ITEM

## PET BOTTLES



**PET bottles**

**Rs. 20 – 100 per piece.**

**Range of sizes.**

**Available easily.**

**HIGH Awareness.**

**PET; LDPE; PS.**

**LDPE.**

- **Easy to carry.**
- **Cost effective.**

**Single use.**

- **Lightweight.**
- **Economical to make.**
- **Ease of production.**
- **Harmful for environment.**
- **Takes 1000s of years to degrade.**
- **Increases problem in waste management.**

**SEVERAL brand manufacture.**

# ALTERNATIVE 1

## TERRACOTTA BOTTLE



### Terracotta bottles

Rs. 300 – 700 per piece

Large size

Online presence.

LOW AWARENESS

100% Natural Clay.

Bubble wrap; LDPE packaging

Not convenient to carry.

Multiple times.

- It keeps water cooler.
- The cost is fluctuating.
- Low availability.
- Low awareness.

MITTICOOL.

- Eco – Friendly terracotta ware.
- Organically certified products.

# ALTERNATIVE 2

## GLASS BOTTLES



Glass bottles

Rs 249 – 999 per piece

Range of sizes

Available easily.

MODERATE AWARENESS.

- Glass.
- Silicon sleeves.

**LDPE packaging.**

Not convenient to carry.

Can be reused multiple times.

- Glass is BPA free.
  - Glass is non – permeable and wont absorb colour & odour.
  - Water simply taste better.
- 
- Due to easy breakability it has shorter lifespan.
  - Manufacturing a glass can cause similar carbon emission as PET plastic bottles.

Several brands manufacture.

# ALTERNATIVE 3

## METAL BOTTLE



### Metal bottles

Rs.249 – 999 per piece

Medium; Large sizes.

Available easily.

HIGH Awareness.

- Stainless steel.
- Nickel.

Polythylene; Fibreboard.

- Easy to carry.

Multiple times.

- Bottles are BPA free.
- Lightweight.
- Can hold both hot and cold water.
- Sometimes there is metallic taste to water.
- The paint can get peeled off.
- There can be dent in bottle if dropped.

SURUCHI (STELO).

- Eco – Friendly.



# ALTERNATIVE 4

## COPPER BOTTLE



Copper bottles

Rs. 400 – 999 per piece

Medium size.

Available easily.

HIGH Awareness.

- Copper scraps.
- Newly refined copper.
- Copper ingots.

Polythylene; Fibreboard.

- Easy to carry
- Health benefits.

Multiple times.

- Kills bacteria.
- Stimulates brain.
- Digestive system perform better.
- Bottle can get dent if dropped.

DR.COPPER.

- Eco – Friendly.

# PLASTIC ITEM

## PLASTIC BAG



Plastic Bags

Rs. 50 – 100 per pack

Small, Medium, Large sizes

Easily available

HIGH Awareness

- **Petroleum.**
- **Natural gas.**
- **Composed of polymers and monomers.**
- **Repeating units are ethylene or ethene.**
- **LDPE**

Convenient.

**Onetime use**

- **Consumes less energy.**
- **Cheaper than cloth bags & paper bags.**
- **Weather proof.**
- **One of the greatest problem is that an estimated 300 million plastic bags end up in Atlantic ocean alone.**
- **Porpoises are the most common victims.**

SEVERAL brands manufacture.

# PLASTIC VEGETABLE BAGS

# CLOTH VEGGIE BAGS

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# GARBAGE BAG'S

# COMPOSTABLE GARBAGE BAG'S.

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# ALTERNATIVE 1

## BIOPLASTICS



**Bio plastics Bags**

**Rs. 5 – 15 per piece.**

**Small, Medium, Large sizes.**

**Online presence**

**LOW Awareness.**

- **Corn starch.**
- **Potato starch.**
- **Paper pack.**

**Convenient**

**Onetime use**

- **Carbon emission reduction.**
- **Reusable.**
- **These products simply disintegrate into smaller and smaller pieces to become microplastic.**
- **The microplastic can enter the lungs and guts and can transfer chemicals into blood & tissues.**

**REGENO VENTURES**

- **Eco – friendly.**
- **Biodegradable.**
- **Compostable.**
- **Recyclable.**
- **Natural antistatic properties.**

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# ALTERNATIVE 2

## PAPER BAG



### Paper Bags

Rs. 30 – 100 per piece.

Small, Medium, Large sizes

Easily available.

**MODERATE Awareness**

- Paper

- Paper.

Yes, convenient.

Multiple time use.

- Paper bags can decompose more easily than plastic.

- Paper bags are more recycled than plastic.

- Paper produces 70% air pollution.

- 14 millions trees are cut down yearly.

**SEVERAL brand manufacture.**

# ALTERNATIVE 3

## CLOTH BAGS



### Cloth Bags

Rs. 20 – 500 per piece

Small, Medium, Large sizes

Online presence.

**MODERATE Awareness**

- 100% organic cotton
- Fibreboard boxes.

Easy to use.

150 - 200 washes.

- Environmental friendly.
- Long time use.
- Strong and durable.

- Expensive.
- It cannot hold liquid.

**ECOEXIST ENTERPRISES**

- 100% grey cotton is used.
- Unbleached.

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# PLASTIC ITEM

## PLASTIC JEWELLERY



### Plastic Jewellery

Jewellery set: Rs. 999 – 2500 per set.

Necklace: Rs.300 – 1699 per piece.

Bracelets: Rs. 170 – 700 per piece.

Earrings: Rs.199 – 750 per pair.

Very small size.

Easily available in market.

HIGH Awareness.

- **Bakelite.**

**HDPE**

Yes convenient.

Multiple times.

- There are variety of designs in plastic jewellery.
- **Collecting and owning bakelite products does pose health threats.**
- **Bakelite not only contains formaldehyde but also asbestos, which is known as dangerous toxin.**

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# ALTERNATIVE 1

## SEED JEWELLERY



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### Seeds Jewellery

Jewellery set: Rs. 450 – 1200 per set.

Necklace: Rs. 300 – 2300 per piece.

Bracelets: Rs.300 per piece.

Earrings: Rs.150 – 380 per pair.

Very small.

Online presence.

LOW Awareness

- Seeds.

Yes it is convenient.

Multiple times.

- It is natural and eco – friendly.
- There are selective designs for jewellery.
- It can break as it is made out from natural seed.

JUNGLE JEWELS.

- Eco – product.

# PLASTIC ITEM

## DISPOSABLE DIAPER



**Disposable Diapers**

**Rs. 150 – 500 per pack.**

**Medium Sizes.**

**Easily available in market.**

**HIGH Awareness.**

- **Waterproof woodpulp & synthetic.**
- **It takes one cup of crude oil to make one disposable diaper.**

**Polythylene plastic.**

**Not comfortable to all.**

**One time use.**

- **Disposable claims that their nappies have higher absorption.**
- **Disposable does not require washing.**
- **Easy to use.**
- **SPA (Sodium polyacrylate) the absorbent chemical can cause irritation, allergic reactions on baby's skin.**
- **It contains TBT (tributyl tin) and other heavy metals, which are considered as highly toxic environmental pollutant. TBT harms the immune system & impairs the hormonal system.**

**SEVERAL brand manufacture.**

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# ALTERNATIVE 1

## CLOTH DIAPERS



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### Cloth Diapers

Rs. 500 – 1300 per piece.

Medium Size

Online presence.

LOW Awareness .

- Cloth.
- Charcoal bamboo.
- Hemp.

Fibreboard.

Comfortable and convenient.

100 – 150 uses.

- Cloth nappies has less impact on environment.
- You have variety of stylish cloth nappies.
- Cloth nappies prevent nappy rash.
- Cloth nappies are difficult to carry while travelling.
- You cannot throw the nappy, it needs to be washed which can be time consuming.

SUPPERBOTTOMS; KINDERMUM.

- India's first and only tested and certified cloth diaper brand.
- High quality fabrics.
- Eco –Friendly.

# ALTERNATIVE 2

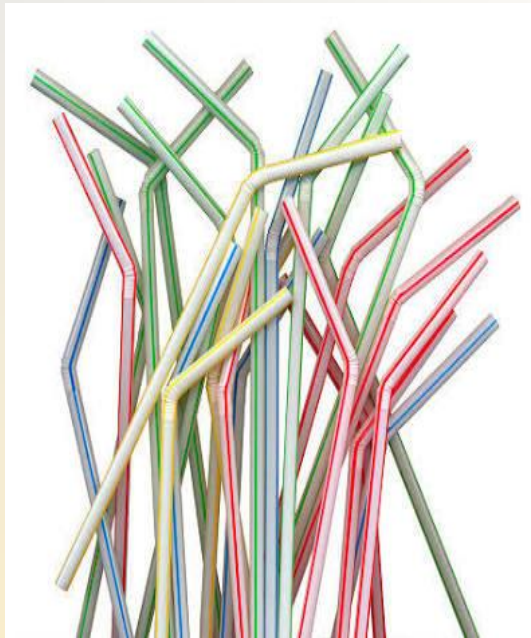
LANGOT



Langot
Rs. 100 – 400 per pack.
Small size.
Available in market; Online presence.
MODERATE Awareness.
<ul style="list-style-type: none"><li>CLOTH</li></ul>
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Comfortable and convenient.
5 years and more .
<ul style="list-style-type: none"><li>They prevent rash.</li><li>It is comfortable.</li><li>Less harm to environment.</li></ul>
<ul style="list-style-type: none"><li>You have to wash the Langot after every use to avoid hygiene problem.</li></ul>
SEVERAL brands manufacture.

# PLASTIC ITEM

## PLASTIC STRAW



Plastic straws

Rs 100 – 499 per pack.

Small

Available in market.

HIGH Awareness.

- **Polypropylene plastic.**
- **Polythylene**
- **It is convenient to use.**

**One time use.**

- **According to [strawlessocean.org](http://strawlessocean.org) around 71% of seabirds & 31% of turtles have been found with plastic in their stomach and if plastic is ingested.**

**SEVERAL** bands manufacture.

# ALTERNATIVE 1

## PAPER STRAW



Paper straws

Rs. 60 – 300 per pack.

Small sizes

Online presence.

MODERATE Awareness.

- Paper.

- Bubble wrap.

- Convenient to use.

Multiple time use

- Steel straws are a good option to carry while travelling.

- They can be reused for long time.

- We should focus on reusing not more on recycling and paper straws are disposable ones.

- Though paper is recyclable but you cannot recycle it every time.

PAPPCO GREENWARE (plain) ; ANANT PRO ECO (design).

- 100% eco- friendly.

- Biodegradable.

- Compostable.

- Non – toxic.

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## ALTERNATIVE 2

### BAMBOO STRAWS



**Bamboo straws**

**Rs. 99 – 650 per pack.**

**Medium Sizes.**

**Online presence.**

**MODERATE Awareness.**

- **Bamboo.**
- **Fibreboard.**
- **It is convenient but washing them is necessary.**

**Multiple time use**

- **Healthier choice.**
- **It can be reused again**
- **You need to wash the straw every time you use it.**
- **Washing the straws can be time consuming.**

**BAMBOO INDIA**

- **Reusable bamboo straws.**
- **100% natural bamboo.**
- **No chemical treatment, non – toxic and safe.**

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## ALTERNATIVE 3

### STEEL STRAW



#### ALTERNATIVE 3

Steel straws.

Rs. 60 - 2200 per pack.

Medium size

Online presence.

LOW Awareness.

- Steel.

- Cloth bag.

yes convenient to use and carry.

#### MULTIPLETIME USE.

- Steel straws are a good option to carry while travelling.
- They can be reused for long time.

- You need to wash the straw every time you use it.

#### SUCKIN.

- Rust free.
- Lead free.
- BPA free.



# PLASTIC ITEM

## PLASTIC CUTLERY



### Plastic cutlery

Rs. 299 – 500 per pack.

Small, Medium, Large sizes.

Easily available in shops.

HIGH Awareness.

### Polystyrene

- Non – foamed polystyrene.
- Polyethylene.

Yes convenient.

### Onetime use.

- Convenient, cost effective, lightweight & easy to use.
- Saves time effort & cleaning.
- Supports modern fast lifestyles.

### Impact of plastic in human body:

- Risk of kidney stones.
- Accelerates breast cancer.
- Liver cancer and reduces sperm count.

SEVERAL brands manufacture.

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# ALTERNATIVE 1

## SUGARECANE BAGASSE CUTLERY



### Sugarcane bagasse cutlery

Rs. 170 – 350 per pack

Small; Medium; Large size.

Online presence.

LOW Awareness.

Waste material of sugarcane.

- Bubble wrap.

Yes

Onetime use.

- Bagasse products are produced from sugarcane a renewable resource.
- Bagasse products are made from less energy and water.
- If bagasse products break down in landfill, they do so without oxygen and they release methane a potent greenhouse gas that contributes to global warming.

- Eco – Friendly.
- Disposable.
- Biodegradable.
- Compostable.

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## ALTERNATIVE 2

### EDIBLE CUTLERY



#### Edible cutlery

Rs. 375 per pack.

Small, medium sizes.

Online presence.

MODERATE Awareness.

Dough.

- LDPE.

Yes convenient

Onetime use.

- Edible cutlery does not contain any chemicals, preservatives and additives.
- Edible cutlery fall under food category so hygiene is not an issue.
- It is 100% baked product.
- These disintegrate in less than one week unless insects can at them sooner.
- Edible cutlery cannot be reused.

#### BAKEYS

- 100% natural and baked product.
- Contains no chemicals.
- No preservatives & additives.

## ALTERNATIVE 3

### ARECA NUT CUTLERY



#### Areca nut cutlery

Rs. 295 – 449 per pack.

Small; Medium; Large sizes

Easily available.

MODERATE Awareness.

Made from areca dry leaves.

- LDPE.

Yes

Onetime use.

- Compostable.
- Nice look with a natural wood grain finish.
- Disposable.
- Sturdy.
- Thick.

- Not the cheapest option.
- Edges can be a little rough.
- Absorbs liquid.

- Eco – Friendly.

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## ALTERNATIVE 4

### PATRAWALI



#### Patrawali

Rs. 50 – 100 per pack.

Small; Medium size

Easily available

MODERATE Awareness

Made from broad dried leaves.

- LLDPE.

Not convenient

Onetime use.

- It is Eco – friendly.
- Compostable.

- It is not sturdy.

SEVERAL brands manufacture.

# PLASTIC ITEM

## DISPOSABLE SANITARY NAPKINS



### Disposable sanitary napkins

Rs. 30 – 170 per pack.

Small Size.

Easily available in market.

HIGH Awareness

### LLDPE; LDPE

- They are convenient to people .

### Onetime use

- They are of low cost.
- They can store more of liquid.
- They can cause cancer.
- The plasticizers can actually lead to organ damage .
- Napkins are made to absorb wetness. That is why aside from cotton, they also contain rayon a synthetic fibre which is also dangerous because they also contain dioxin. Basically when rayon is bleached dioxin is released.
- They are prone to bacterial growth and other infections.
- The toxins released by bacteria can actually cause a sudden drop in your blood pressure which is dangerous as the brain fails to get enough blood supply.

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# ALTERNATIVE 1

## DISPOSABLE BIODEGRDABLE PADS



### Disposable biodegradable pads

Rs. 300 – 1000 per pack.

Small Size

Online presence.

LOW Awareness.

LDPE

Convenient.

Onetime use.

- It is biodegradable.
- The cost is very high.

SAATHI

- Eco – Friendly.

# ALTERNATIVE 2

## CLOTH PADS



### Cloth pads

Rs. 250 – 1600 per pack

Medium size

Online presence as well as available in shops.

MODERATE Awareness

Organic cotton

- Not many people use the cloth pads but they are used again and again so they are convenient to them.

Multiple time use.

ECOFEMME

- Eco - Friendly



## ALTERNATIVE 3

### MENSTRUAL CUP



#### Menstrual cups

Rs. 300 – 1200 per pack.

Small size.

Online presence.

LOW Awareness.

Silicon.

LDPE

- Yes they are convenient.

Multiple time use.

- The lifetime of the cup is 5 years.
- It is reusable.
- It is hygienic.
- Products can be defected so leakage can be a problem.
- Some women are not comfortable with the product .

SHECUPS

# PLASTIC ITEM

## PLASTIC FOOD PACKAGING



### Plastic Food Packaging

Small; Medium; Large.

Easily available.

**HIGH Awareness.**

- **HDPE.**
  - **LDPE.**
  - **LLDPE.**
  - **PET.**
  - **PP.**
  - **PVC.**
  - **PS.**
- Ease of access.
  - Handling.
  - Product visibility.

**Onetime use.**

- + Plastic packaging is a very flexible and adaptable form of packaging.
- + Plastic packaging is an extremely light – weight.
- + Plastic packaging can survive extreme environments.
- + It is cost effective.
- + **The chemical component Bisphenol A is toxic.**
- + **More of fossil fuels is used to make these packaging.**

**SEVERAL** brands manufacture.

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# ALTERNATIVE 1

## BEESWAX FOOD WRAPS



### BEEWAXWRAPS.

Rs.300 – 2500 per pack

Small; Medium; Large size

Online presence but in low frequency.

LOW Awareness.

- Organic cotton.
- Pure beeswax.
- Organic jojoba butter.

Fibreboard.

Multiple times.

- + Made from safe and natural materials.
- + Can be reused over and over again.
- + Can be composed.
- + Beeswax also has vitamin A, which improves hydration to the skin and promotes cell regeneration.
- + It requires maintenance.
- + It is costly.
- + It is not ideal for all foods.

APIARY MADE.

- Biodegradable.
- Natural.

THANK YOU.

FOR QUERIES CONTACT US AT:

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Read more at :

[www.e-coexist.com](http://www.e-coexist.com)

