



Plastic Pollution and Covid Pandemic



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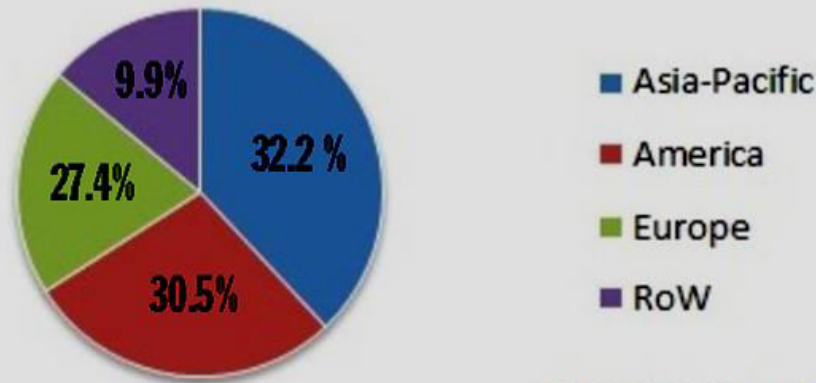
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FLEXIBLE PACKAGING : MARKET IS EVER GROWING

Global Flexible Packaging Market Revenue, By Geography, 2016(%)



MarketIntelReports

FLEXIBLE PACKAGING MARKET

By Material:

Plastics, Aluminium Foil, Paper, Bio Plastics and Others

By Industry:

Food & Beverage, Personal Care, Pharmaceuticals, Oil and Lubricants and Others

By Packaging Type:

Vacuum Pouches, Thermoforming Films, Lamination Films, Lidding Films, Bags & Others

By Geography:

Americas, Europe, APAC and RoW

Flexible Packaging Market projected to exceed \$250 billion by 2024



PLASTICS PACKAGING



Total converter demand **51.2 m t**

PACKAGING



39.7 %

BUILDING & CONSTRUCTION



19.8 %

AUTOMOTIVE



10.1 %

OTHERS

medical equipment, plastic furniture and furniture equipment, technical parts used for mechanical engineering or machine-building, etc.

ELECTRICAL & ELECTRONIC



6.2 %

HOUSEHOLD, LEISURE & SPORTS



4.1 %

AGRICULTURE



3.4 %

16.7 %



FLEXIBLE PLASTIC PACKAGING:



**MULTILAYER FILMS
STRECH WRAP/ SHRINK WRAP
METAL COATED FOILS
PAPER LAMINATES
BOPP FILMS**

**FOOD PACKAGING
AGRI-BASED: GRAINS
FRUITS & VEGETABLES
DRY EDIBLES
OIL, MILK**

**MEDICALS
CLEANING AGENTS**

**ELECTRONICS
COMPONENTS
WIRE AND CABLE**

**TEXTILES
GARMENTS**

**AUTO PARTS
MACHINE PARTS
TOYS**

**HOODS
SHROUDS
SPORTS GOODS**





PLASTICS USAGE

GOOD



BAD



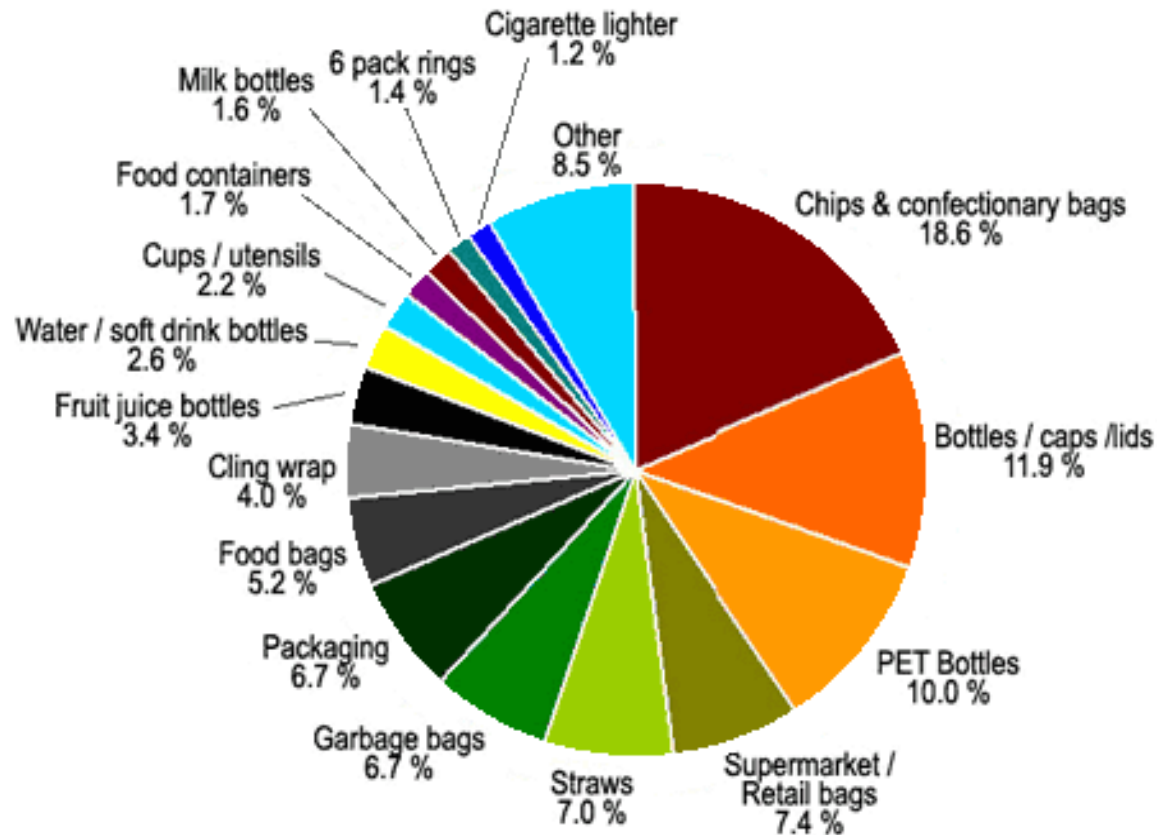
UGLY



Production of plastic waste



- 500 billion plastic bags are used per day world wide.
- Plastic waste generated in India:- 15,342 tones/day
- Plastic waste generated in India/ Annum:- 5.6 Million tones.



PANDEMIC AND PLASTICS WASTE



PLASTIC POLLUTION VIRUS (PPV) HIT THE WORLD BEFORE COVID-19

ALL ENVIRONMENTALISTS, CELEBRITIES, SOCIAL MEDIA, TV CHANNELS, PLASTIC INDUSTRY, SCIENTISTS, RESEARCHERS AND EVERYONE WERE AFFECTED BY THIS PPV

ALL TYPES OF INFORMATIONS WERE FLOATED AROUND AND GREAT PANIC CREATED

SITUATION BECAME ALARMING

LOCKDOWN WAS IMPOSED : BAN ON PLASTICS !!!

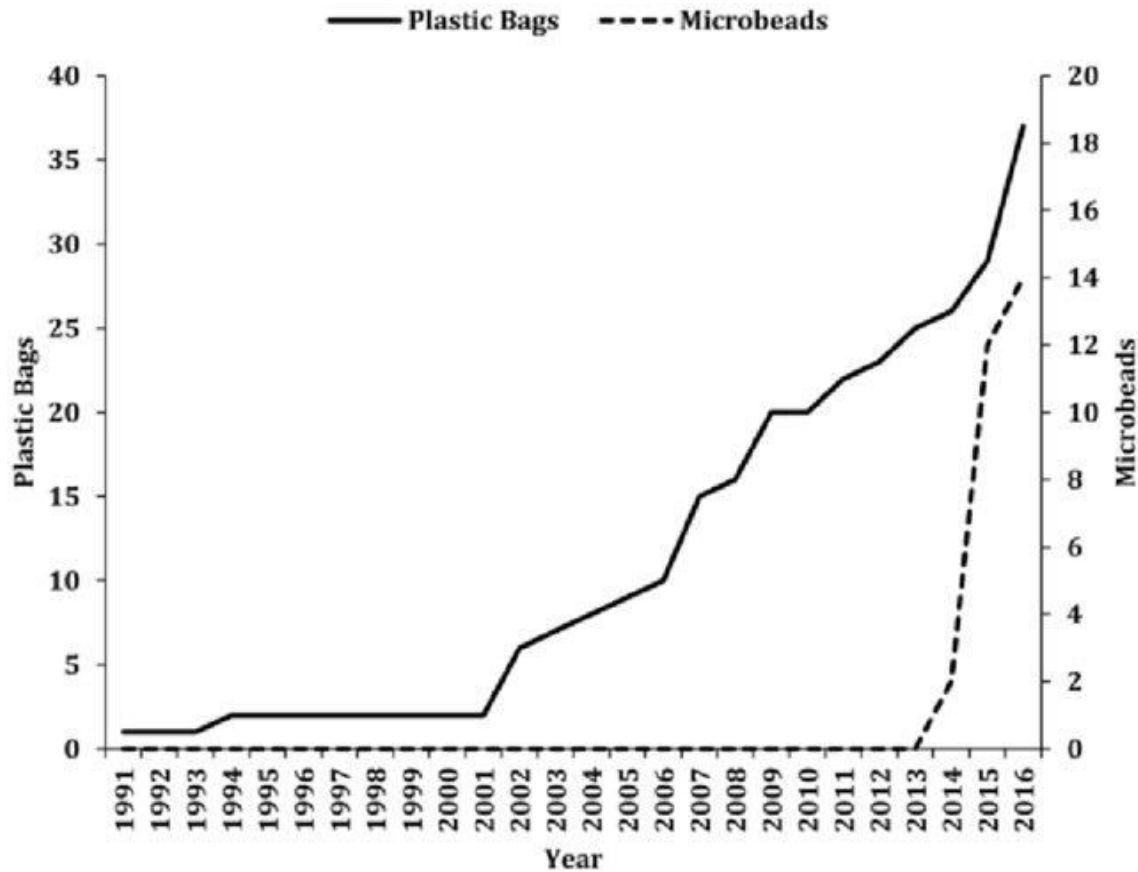
LOCKDOWN DID NOT HELP MUCH IN DECREASING COVID CASES BUT ONLY POSTPONED THE PEAK

PLASTIC BAN DID NOT HAVE MUCH EFFECT ON PPV





PANDEMIC LIKE SITUATION IN PP-V



**PLASTIC BAG
CONSUMPTION
PER CAPITA IS
RISING**

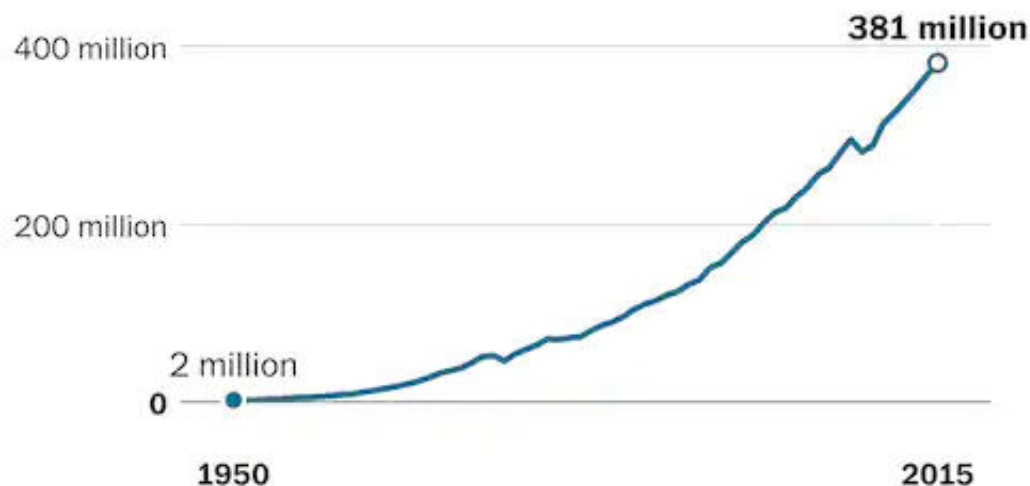
**MICRO-BEADS
RISING
TREMENDOUSLY**



PANDEMIC LIKE SITUATION IN PP-V

Global plastic pollution

Between 1950 and 2015, annual global polymer resin and fiber production (measured in million metric tons) increased almost every year.



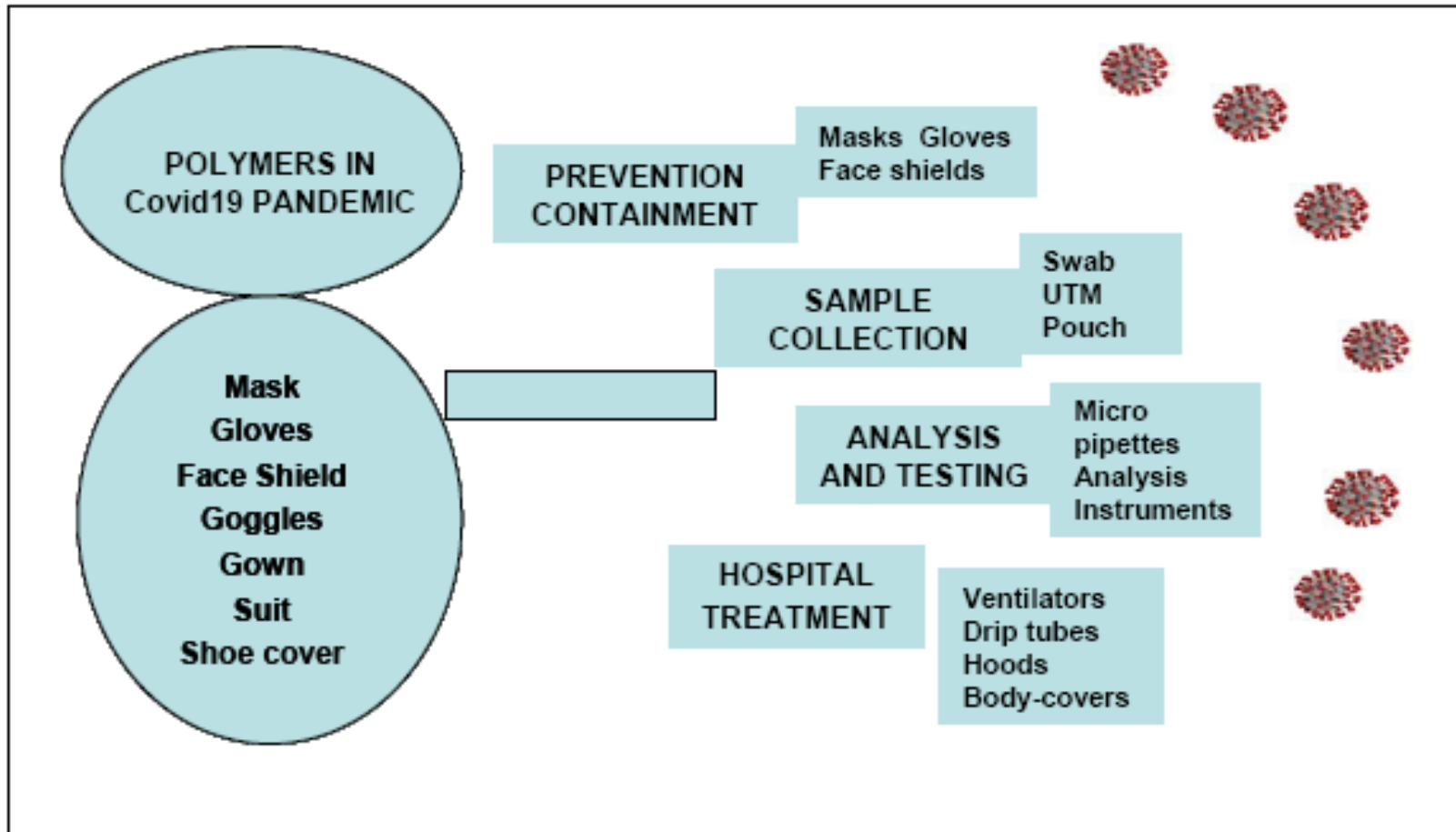
**PLASTIC BAG
CONSUMPTION
PER CAPITA IS
RISING**

**MICRO-BEADS
RISING
TREMENDOUSLY**

Source: R. Geyer, J. R. Jambeck, K. L. Law

THE WASHINGTON POST

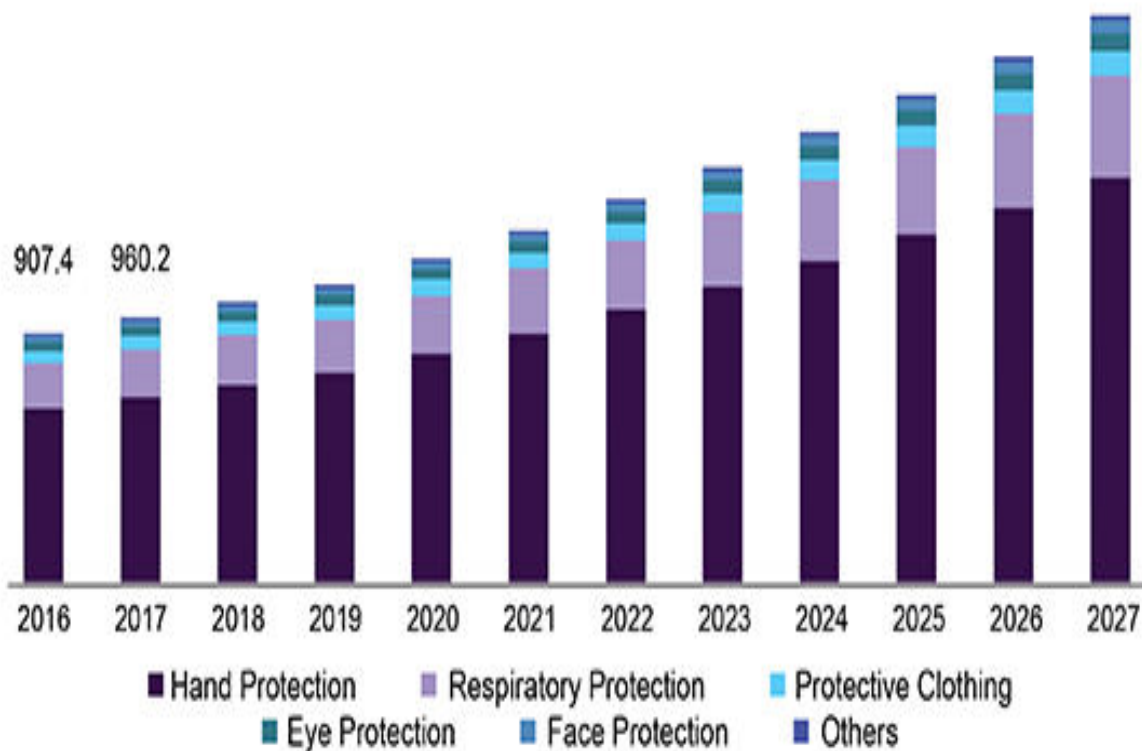
INCREASE OF PLASTIC USAGE LEADING TO MORE WASTE IN COVID PANDEMIC :



INCREASE OF PLASTIC USE AND ITS WASTE IN COVID PANDEMIC :



U.S. healthcare personal protective equipment market size, by product, 2016 - 2027 (USD Million)



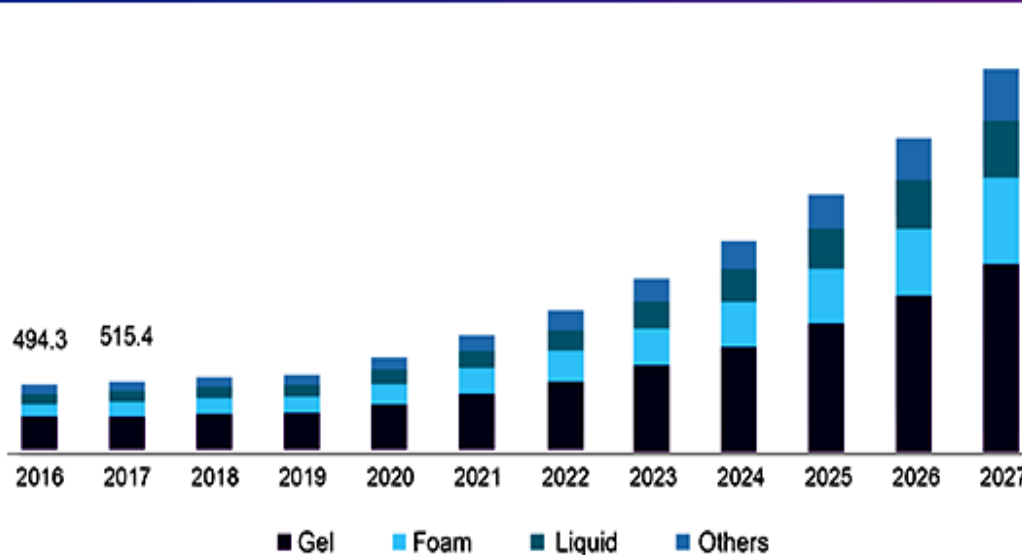
Source: www.grandviewresearch.com



INCREASE OF PLASTIC USE AND ITS WASTE IN COVID PANDEMIC :



U.S. hand sanitizer market size, by product, 2016 - 2027 (USD Million)



Source: www.grandviewresearch.com



INCREASE IN HAND SANITIZER USAGE WILL LEAD TO INCREASE OF PLASTIC BOTTLES IN WASTE BINS



PANDEMIC LIKE SITUATION IN PP-V



THERE ARE MANY STUDIES AND EFFORTS MADE IN RECENT YEARS TO REDUCE PP-V :

- ❖ BAN ON PLASTIC BAGS, SINGLE USE PLASTICS
- ❖ RECYCLING AND REUSE
- ❖ CONVERT PLASTICS WASTE TO FUEL
- ❖ RECOVER MONOMERS FROM PLASTICS LIKE PET
- ❖ INCINERATE PLASTIC WASTE FOR ENERGY
- ❖ BIOCOMPOSTABLE PLASTICS
- ❖ ALTERNATIVE MATERIALS INSTEAD OF PLASTICS

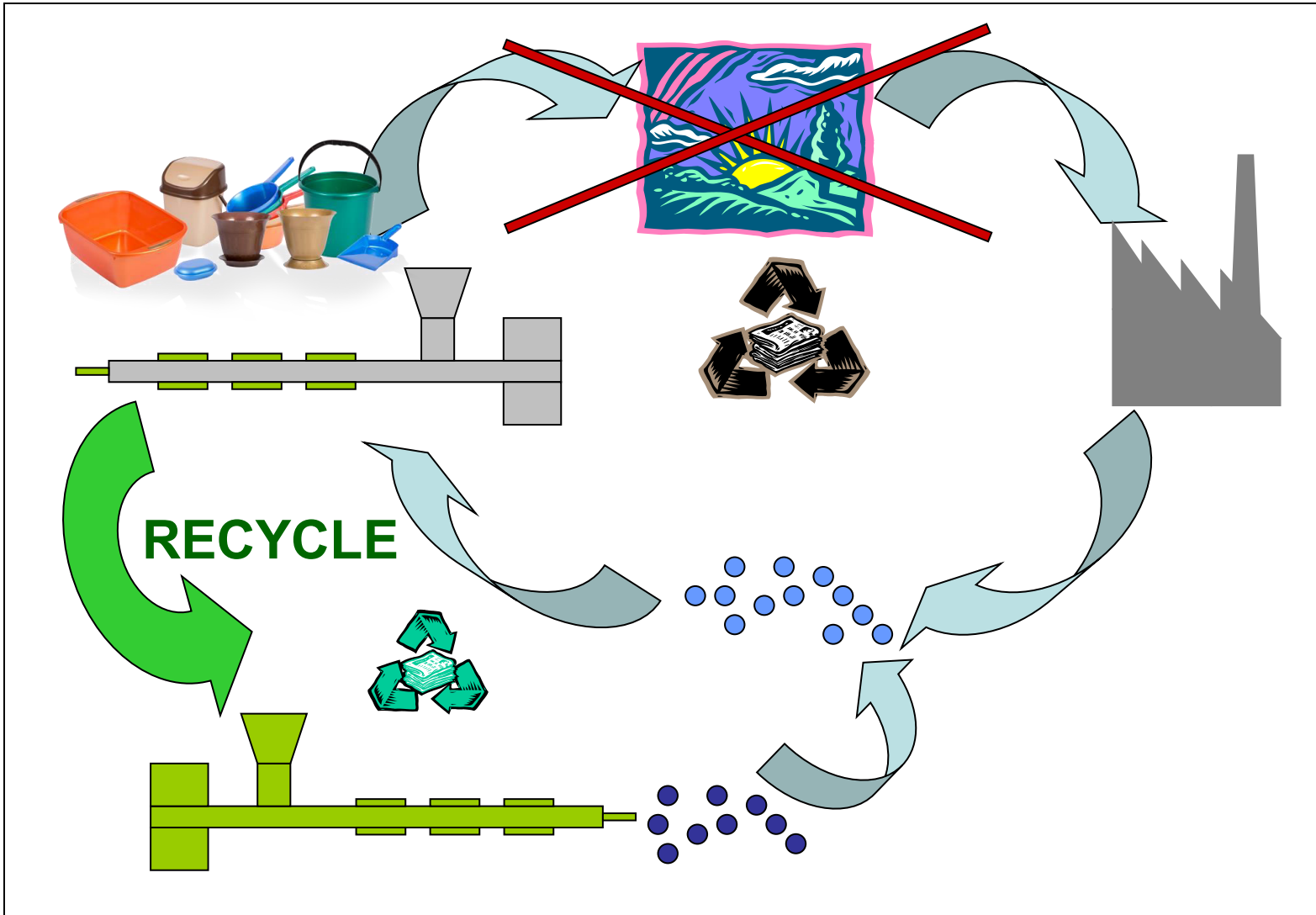
HOWEVER RECENT STUDIES PUBLISHED INDICATE

Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution *Science* 18 Sep 2020:

Vol. 369, Issue 6510, pp. 1515-1518



RECYCLING IS THE KEY TO MINIMISE PLASTICS WASTE IN ENVIRONMENT



RECYCLING PLASTIC PACKAGING (EU)

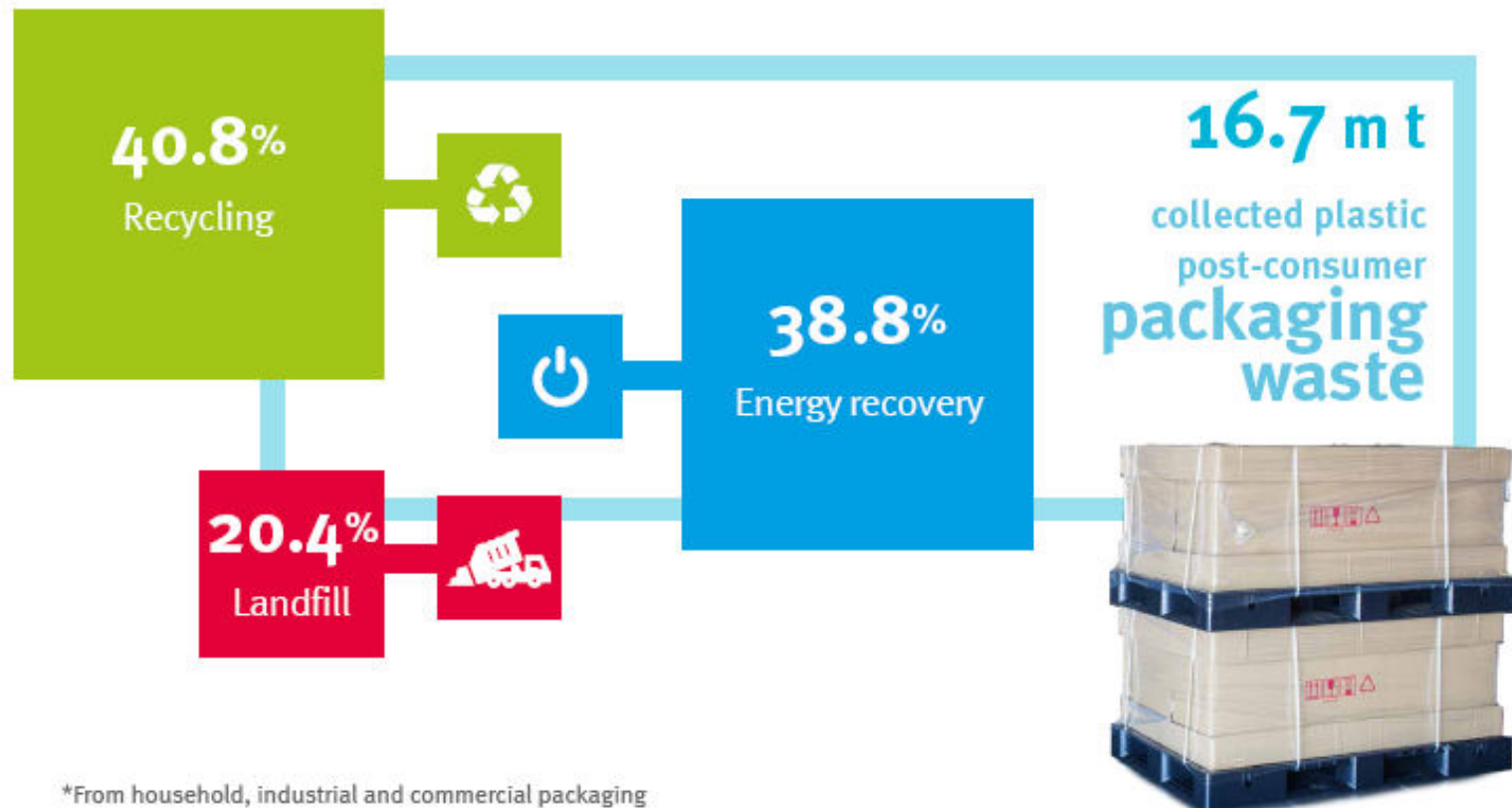


Recycling is the first option for plastic packaging waste

In 2016, 16.7 million tonnes of plastic packaging waste were collected through official schemes in order to be treated.

Source: Conversio Market & Strategy GmbH

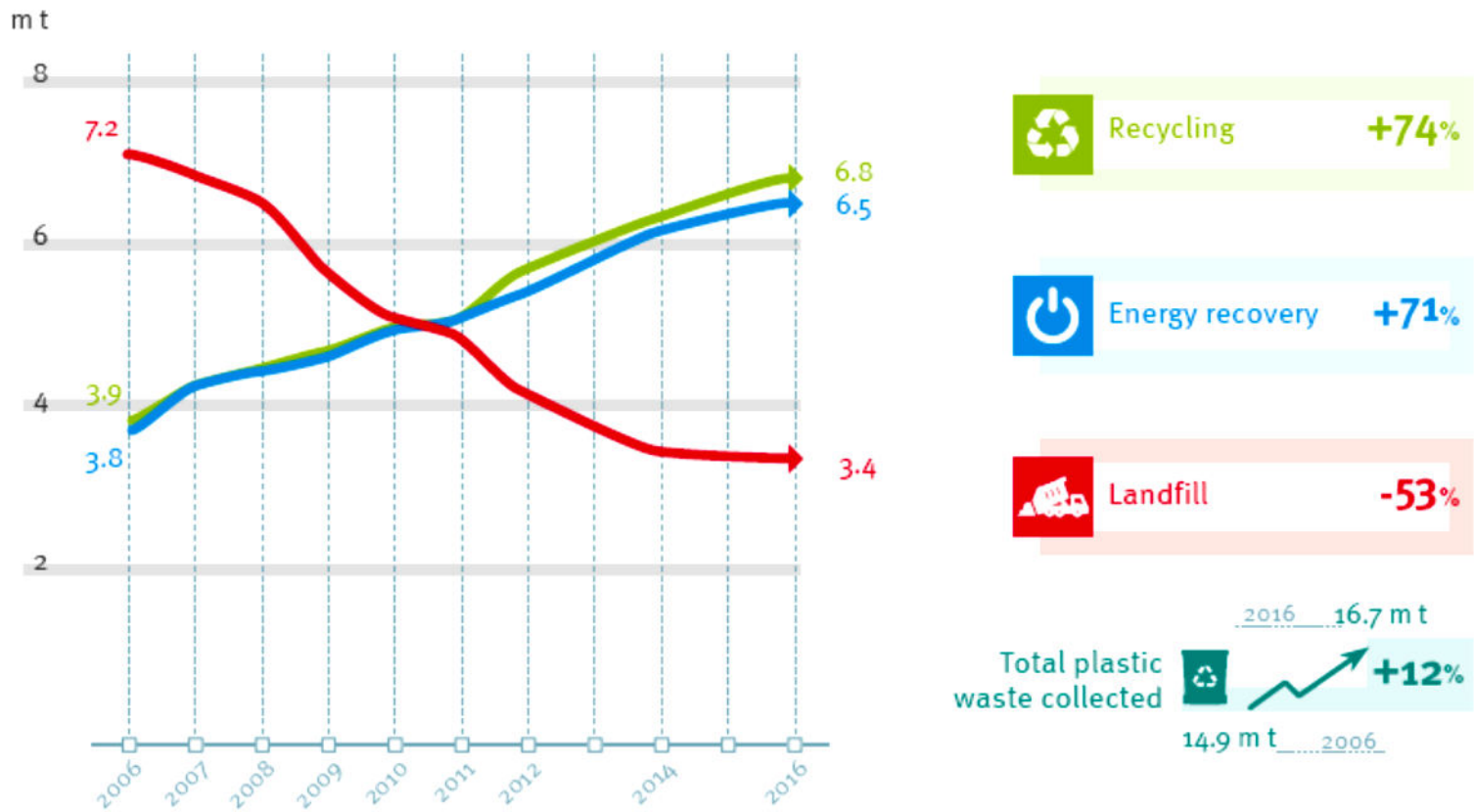
Plastic **PACKAGING*** waste treatment in 2016 (EU28+NO/CH)



RECYCLING PLASTIC PACKAGING (EU)



2006-2016 evolution of plastic **PACKAGING*** waste treatment (EU28+NO/CH)

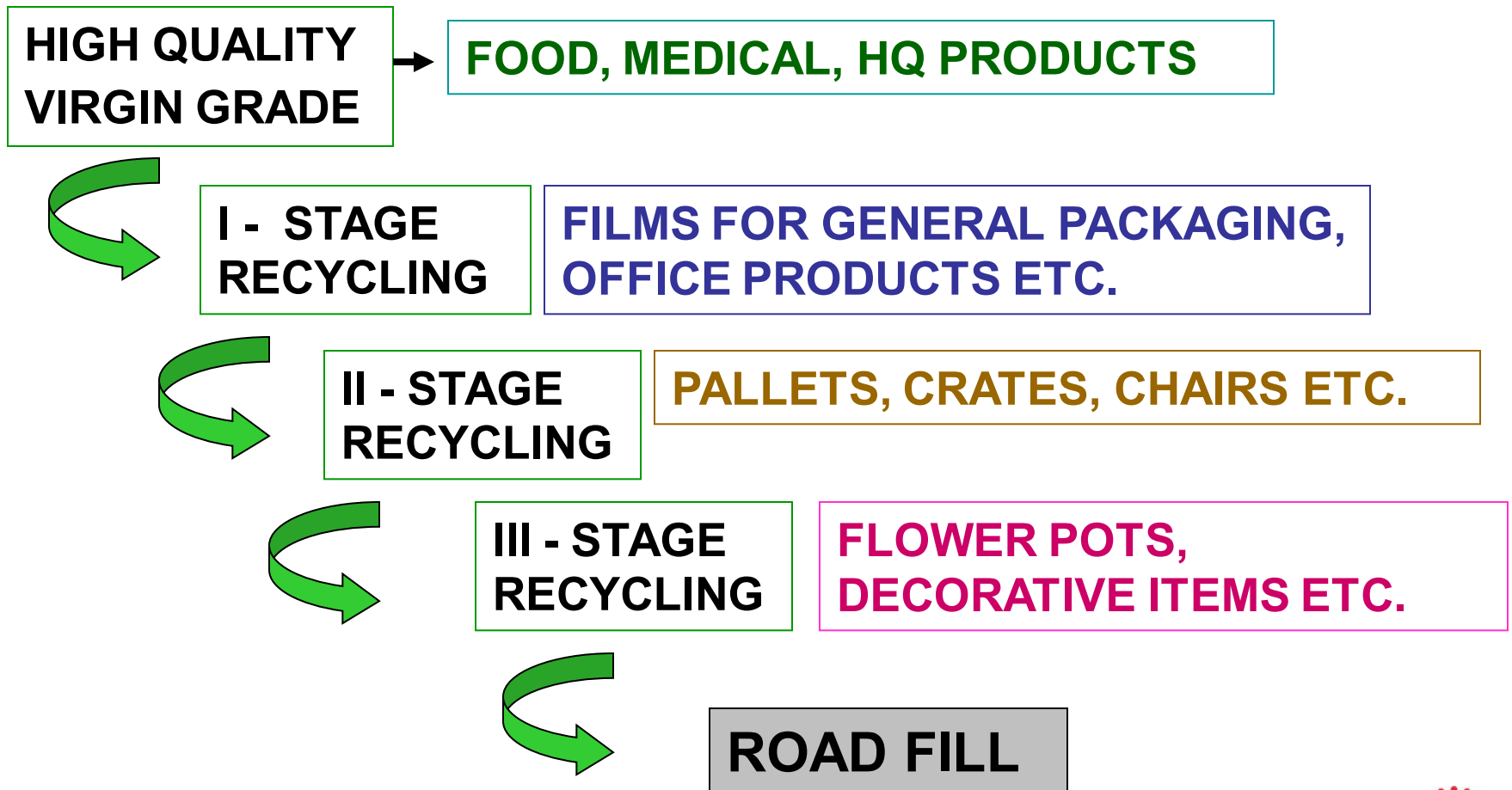


*From household, industrial and commercial packaging





RECYCLING AND CONVERSION CAN BE USEFUL AT DIFFERENT STAGES :



RECYCLED PLASTICS GOODS USING MIXED PLASTIC WASTE :

MIXED PLASTIC WASTE WAS GRANULATED

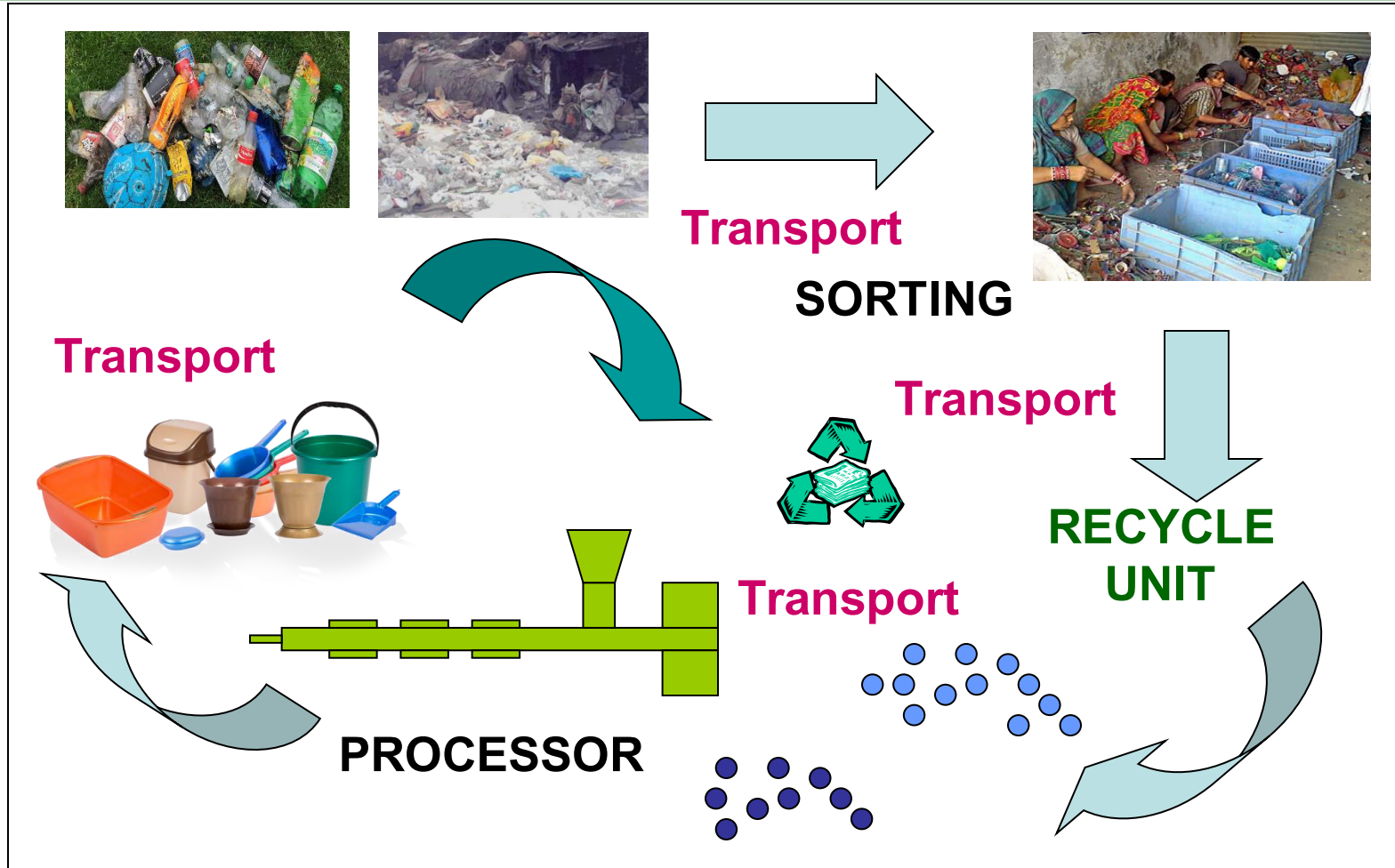
LLDPE POWDER + ABOVE WASTE UPTO 50%

ROTOMOLDED BY CONVENTIONAL METHOD

GOOD QUALITY PRODUCT WITH MULTICOLOR EFFECTS :



RECYCLING PROCEDURE IS LENGTHY CONSUMES TOO MANY RESOURCES FOR TRANSPORT



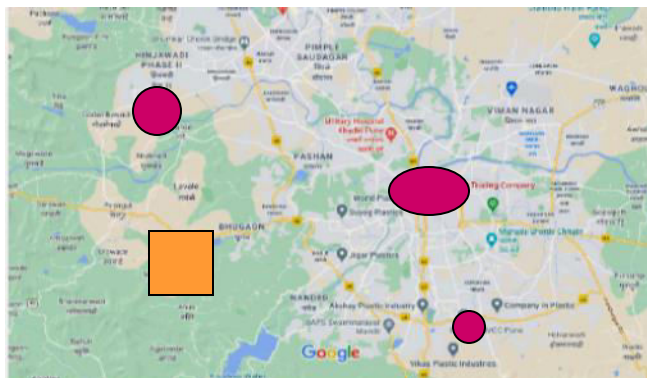
**PLASTIC WASTE VOLUME IS 50 TIMES ITS WEIGHT :
TRANSPORT COST IS VERY HIGH, ONLY AIR IS CARRIED!**



PANDEMIC APPROACH TO SOLVE PP-VIRUS



- ❖ TRACK TEST AND TREAT
- ❖ CONTAINMENT AND ISOLATE
- ❖ CHANGE BEHAVIOUR AND LIFE STYLE
- ❖ NEW BIGGER WAVE OF PP-VIRUS IS EXPECTED AND IT IS BOUND TO COME: BE PREPARED
- ❖ PPE WILL ALSO ADD TO PPV SURGE EVEN AFTER COVID: BE PREPARED



Plastic Pollution Zones can be marked for the city and appropriate Disposal machines set up in those zones



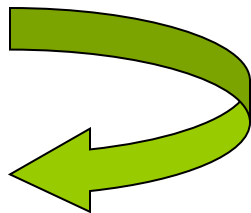
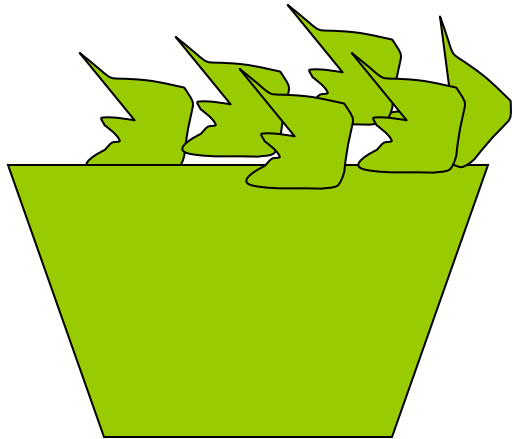
CHANGE IN BEHAVIOUR AND LIFE STYLE:



USE OF BIO-COMPOSTABLE PLASTIC
FOR WET GARBAGE ONLY TO GIVE
TRUE EFFECT ON ENVIRONMENT

SEPARATE BIN FOR
COMPOSTABLE BAG

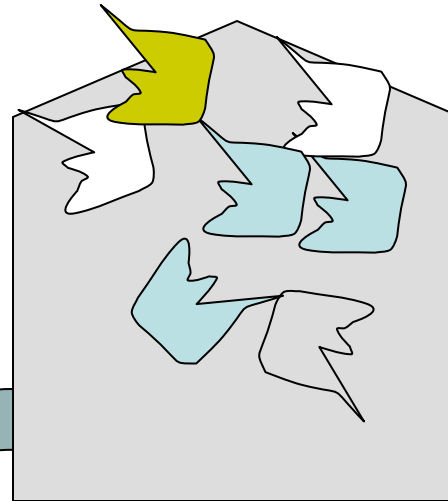
BAG WITH WET
WASTE ONLY



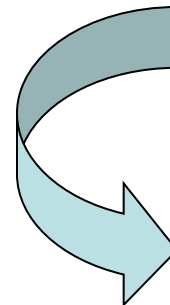
COMPOSTER

BIN FOR RECYCLING BAG

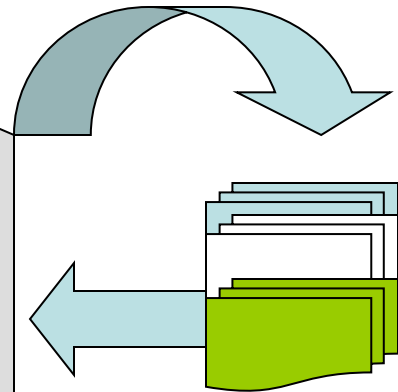
DRY WASTE
ONLY



Plastic recycle bin



TO RECYCLING PLANT



SHREDDER



PANDEMIC APPROACH TO SOLVE PP-VIRUS

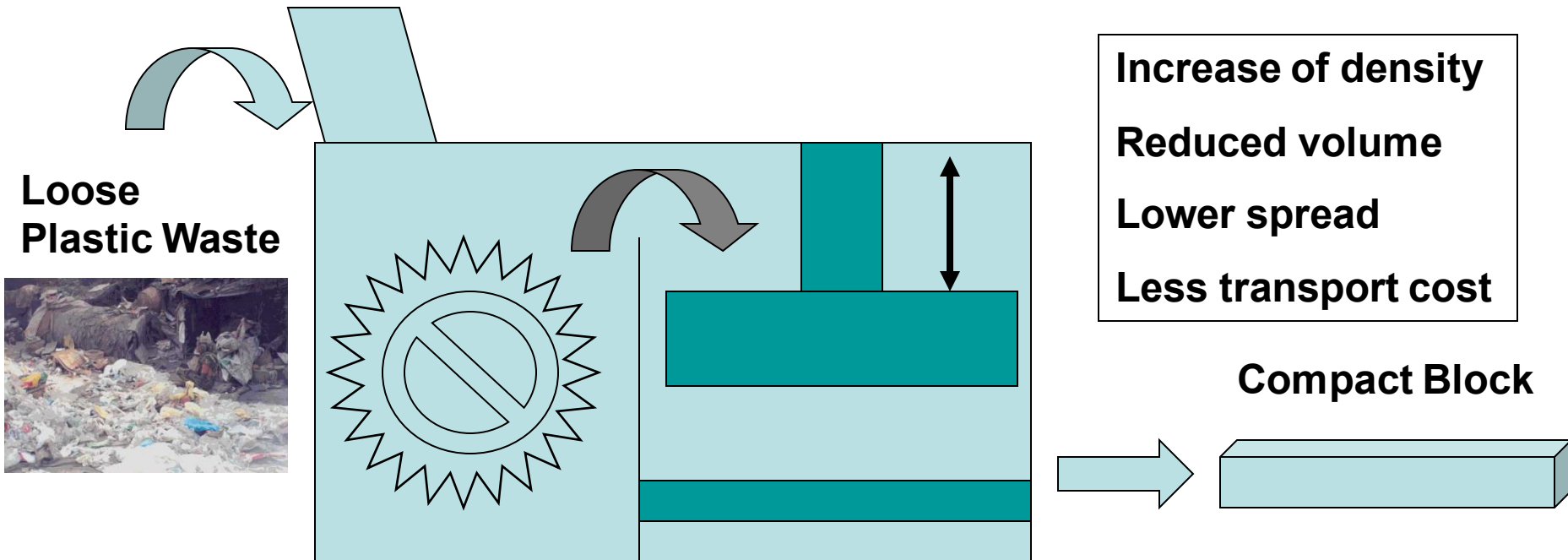


INVENT AND INNOVATE A VACCINE AND INJECT THE SOCIETY

WHAT IS THE VACCINE HERE FOR PP-VIRUS?

COMPACT PLASTIC DISPOSAL MACHINE

KEPT IN CONTAINMENT ZONE TO KILL THE PP-VIRUS AT SITE





MACHINE FOR KILLING PP-VIRUS :

PLASTIC DISPOSAL MACHINE :

COMPACT WITH SHREDDER, COMPRESSION MOLDING / SHEET OR BLOCK MAKING UNIT

EACH CONTAINMENT ZONE WILL HAVE ONE SUCH UNIT

MIXED PLASTIC WASTE IS INPUT AND PLASTIC COMPOSITE SHEET OR BLOCK IS THE OUTPUT.

LEADS TO VOLUME REDUCTION AND EASE OF TRANSPORTATION AND ALSO DRASTIC REDUCTION IN COST

IF NEEDED, THE GARDEN DRY WASTE CAN ALSO BE MIXED TO MAKE WOOD- POLYMER COMPOSITE

THE SHEETS AND BLOCKS CAN BE USED FOR ROAD CONSTRUCTION, FUEL / POWER GENERATION,



PLASTICS WASTE DISPOSAL MACHINE :



Reports indicate that each person in Maharashtra uses 700 plastic bags in a year, mostly as packaging for grocery items and dry food.

This leads to about 25 g plastic waste/ person/day

In a community of 100 flats with an average of 4 persons per flat, this works out to be 10 Kg plastic waste /day

Compact plastic disposal machine can work for 1 to 2 hr and convert all the plastic waste to blocks/ sheets. These can be used locally or transported for further applications.

Advantage is of densification of plastic waste, reduction in volume, ease of storage and economic transport directly to the user.



SUMMARY AND CONCLUSION



PLASTIC POLLUTION VIRUS CAN BE ARRESTED BY

- ❖ RECYCLE AND REUSE OF MATERIALS: PROPER SYSTEM IS TO BE ESTABLISHED
- ❖ INTRODUCING SEPARATE STREAM AT SITE ITSELF FOR COMPOSTABLE AND RECYCLING MATERIALS
- ❖ NOT USING COMPOSTABLE PLASTIC FOR RECYCLABLES DRY WASTE
- ❖ DE-CENTRALIZE THE PLASTIC WASTE DISPOSAL
- ❖ IDENTIFY ZONES WHICH HAVE HIGH PLASTIC WASTE PRODUCTION
- ❖ SET UP A COMPACT PLASTIC WASTE DISPOSAL SYSTEM IN THE ZONES
- ❖ REDUCE TRANSPORTATION OF PLASTIC WASTE
- ❖ EDUCATE PEOPLE, GOVERNMENT STAFF, PLASTIC MANUFACTURERS, USERS, GARBAGE HANDLING STAFF.....



SAVE ENVIRONMENT BY THE 4 R PRINCIPLE



REPROCESS

REMAKE

THANK YOU

THANK YOU

**FOR
LISTENING
AND
RECYCLING**

REUSE

THANK YOU

RETHINK

