

# NOTE package;

UNCOVERING SECRETS OF RECYCLING

BY: AISHU.S

MY PROBLEM: IS RECYCLING BENEFICIAL FOR THE ENVIRONMENT OR HARMFUL?

BACKGROUND RESEARCH:

- ONLY ABOUT 9% OF THE WORLD'S RECYCLABLE GOOD ARE PROCESSED SUCCESSFULLY, WHILE THE OTHER 91% EITHER GETS CONTAMINATED, DIS-SORTED OR ENDED UP IN A BODY OF WATER.
- ONE MAJOR ISSUE IN RECYCLING IS COST AS IT IS EXPENSIVE DUE TO FACTORS OF TRANSPORTATION, COLLECTION, AND PROCESSING WHICH ALL COST WAY MORE THAN STANDARD WASTE MANAGEMENT.

THESIS STATEMENT:

- RECYCLING COSTS SO MUCH MONEY, YET ONLY SMALL IMPACTS ARE MADE,
- WHILE BEING GOOD IN THEORY, RECYCLING IN PRACTICE IS NOT AS IT SEEMS OR MEET THE REQUIREMENTS LEADING TO DISADVANTAGES OUTWEIGHING ITS BENEFITS.

WHAT ARE THE PROS OF RECYCLING (SLIDE 4):

- RECYCLING OFFERS NUMEROUS BENEFITS SUCH AS, DECREASING OF POLLUTION, LANDFILL SIZE, CONSERVES NATURAL RESOURCES,
- SUPPORTS ECONOMY BY CREATING MORE JOBS AND OPPORTUNITIES TO EARN MONEY WHILE HELPING THE PLANET

WHAT ARE THE CONS OF RECYCLING (SLIDE 5-6):

- RECYCLING BUILDINGS AND INFRASTRUCTURE ARE EXPENSIVE TO BUILD.
- MANY RECYCLING PROCESSES ARE INEFFICIENT, INTENSIVE-ENERGY USAGE, AND OFTEN MULTIPLE FAILURES DURING THE PROCESS.
- ONLY A FEW RECYCLED PRODUCTS SUCCESSFULLY GET RECYCLED BUT NOW THE RECYCLED PLASTIC IS DOWNCYCLED (PRODUCT BECOMES WEAKER AND HAS A SHORTER LIFESPAN)

THE EFFECT OF RECYCLING ON THE LITHOSPHERE:

- PROS: RECYCLING HELPS CONSERVE NATURAL AND FRESHWATER RESOURCES.
- CONS: RECYCLING COMES WITH COSTS SUCH AS LAND DEGRADATION, EXTRACTION OF RESOURCES, AND SOIL POLLUTION.

#### THE EFFECT OF RECYCLING ON THE HYDROSPHERE:

- PROS: HELPS TO CONSERVE FRESHWATER RESOURCES AND RESERVES, REDUCES WATER POLLUTION, AND HELPS TO PROTECT THE MARINE ECOSYSTEM.
- CONS: RECYCLING HAS SERIOUS DISADVANTAGES AGAINST THE HYDROSPHERE SUCH AS ACID RAIN, AND ONE OF THE MOST HARMFUL FACTOR IS EUTROPHICATION, EUTROPHICATION IS THE PROCESS WHEN A BODY OF WATER HAS EXCESSIVE MINERALS AND NUTRIENTS THAT CAUSE ALGAE TO BLOOM RAPIDLY AND OXYGEN UNDER WATER TO START DEPLETING.

#### THE EFFECT OF RECYCLING ON THE ATMOSPHERE:

- PROS: RECYCLING IS STARTING TO HELP THE ATMOSPHERE BY REDUCING THE AMOUNT OF CO<sub>2</sub> POLLUTION
- CONS: RECYCLING RELEASES ADDITIONAL GREENHOUSE GAS EMISSIONS, AND THESE END UP CONTRIBUTING TO CLIMATE CHANGE.

#### THE EFFECT OF RECYCLING ON THE BIOSPHERE:

- PROS: RECYCLING HELPS TO EASE THE NEED AND DEMAND FOR NEW AND RAW MATERIALS TO BE EXTRACTED.
- CONS: THE DEGRADATION OF PLASTIC WASTE CONTRIBUTES TO SOIL POLLUTION WHICH CAN START TO KILL FLORA AND FAUNA.

#### WHAT IS ENERGY CONSERVATION?

- ENERGY CONSERVATION IS THE PRACTICE OF TRYING TO CONSUME LESS ENERGY AND AVOID ANY UNNECESSARY ENERGY CONSUMPTION

#### WHAT IS CHEMICAL PROCESSING?

- CHEMICAL PROCESSING IS ALSO KNOWN AS CHEMICAL RECYCLING; THIS IS THE PROCESS OF TAKING A RECYCLABLE MATERIAL AND BREAKING IT DOWN TO ITS BASIC BUILDING BLOCKS.

WHAT IS MATERIAL PROPERTIES:

→ MATERIAL PROPERTIES DEFINE THE CHARACTERISTICS, BEHAVIOR, AND THE PERFORMANCE OF A RECYCLABLE MATERIAL DURING THE PROCESS OF RECYCLING.

WHAT IS ENVIRONMENTAL IMPACT:

→ ENVIRONMENTAL IMPACT REFERS TO HOW RECYCLING EFFECTS CAN IMPACT THE EARTH IN NUMEROUS WAYS.

WHAT IS SORTING AND PROCESSING:

→ SORTING AND PROCESSING REFER TO THE PROCESS OF SYSTEMATIC SORTING AND SEPARATION AND HANDLING WASTE MATERIALS AND TO VERIFY IF THEY CAN BE REUSABLE.

### **THE 3 TYPES OF RECYCLING:**

#### PRIMARY RECYCLING:

→ IT IS ALSO KNOWN AS CHEMICAL PROCESSING OR CLOSED LOOP RECYCLING.

→ THIS PROCESS ALLOWS INDIVIDUALS TO REUSE PRODUCTS FOR A DIFFERENT PURPOSE WITHOUT CREATING A MEANINGFUL CHANGE TO THEIR CHEMICAL COMPOSITION.

#### SECONDARY RECYCLING:

→ REPURPOSING OR UPCYCLING A PRODUCT BY REUSING THEM, FOR EXAMPLE, EGG CARTONS COULD BE REUSED AS A PAINT PALETTE.

#### TERTIARY RECYCLING:

→ ALSO KNOWN AS CHEMICAL RECYCLING

→ THE PRODUCT IS REUSED BY ALTERING THE CHEMICAL BUILDUP/STRUCTURE (PLASTIC BOTTLE -> PLASTIC BAG) BUT DURING THIS PROCESS THE PRODUCT GETS DOWNCYCLED.

## CONCLUSION:

- AFTER CONDUCTING ALL THE RESEARCH, I HAVE CONCLUDED THAT RECYCLING IS NOT THE BEST ALTERNATIVE OPTION AND THAT ITS DISADVANTAGES MAY OUTWEIGH ITS BENEFITS IN MANY MORE SCENARIOS.

## NANO-RECYCLING-THE FUTURE OF RECYCLING:

- THE GOAL IS TO RECOVER NANO-SCALE PRODUCTS THAT ARE AT THE END OF ITS LIFETIME
- THE PROCESS IS MAKING THE PRODUCT TO A NANOSCOPIC STATE AND REBUILDING EVERYTHING UP AGAIN INCLUDING THE BUILDING BLOCKS.

## PREDICTION-WHAT WILL RECYCLING LOOK LIKE IN THE NEXT 10 YEARS:

- THIS IS AN EDUCATED PREDICTION, BUT IN THE NEXT 10 YEARS I THINK THAT RECYCLING RATES WILL DECREASE DUE TO OVER-PRODUCING AND AN OVERLOAD ON FACTORIES CAUSING THEM TO DISCARD THEM INSTEAD OF GOING THROUGH THE PROCESS.

## WHAT'S NEXT:

- MY RESEARCH PROJECT HOPEFULLY REACHES OUT TO MANY INDIVIDUALS AND INFORMS THEM OF THIS CURRENT SITUATION.
- MY PROJECT IS NOT TO FORCE PEOPLE, RATHER THAN TO INFORM THEM AND LET THEM KNOW WHAT IS GOING ON BEHIND THE SCENES AND WHAT ARE THE SAID OUTCOMES.