

CM

& E

CANADIAN
MANUFACTURERS
& EXPORTERS

LEAN AND GREEN 101 Embracing Excellence June 6, 2022

DECEMBER
2017

Brett Wills



CALENDAR

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			



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AGENDA

- 8:00 AM Welcome & Introductions
- 8:10 AM Defining Environmental Sustainability
- 8:20 AM The Business Case
- 8:30 AM Lean & Green Process / 7 Green Wastes
- 9:30 AM Identifying Green Wastes
- 9:45 AM **Breakout #1: Identifying Your Green Wastes**
- 10:00 AM **Break**
- 10:15 AM Measuring Green Wastes
- 10:45 AM **Breakout #2: Measuring Your Green Wastes**
- 11:00 AM Minimizing Green Wastes
- 11:35 AM **Breakout #3: Minimizing Your Green Wastes**
- 11:55 AM Wrap Up & Next Steps
- 12:00 PM **Workshop Concludes**

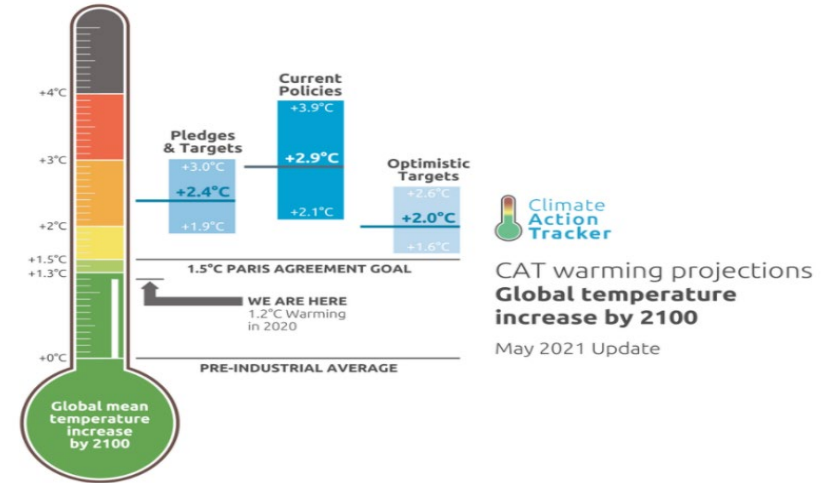


Defining Sustainability

Understanding the Issues

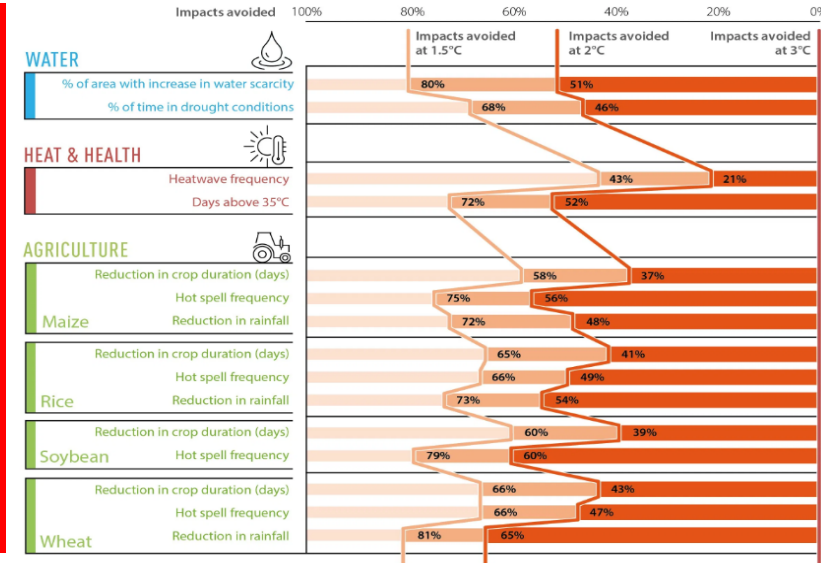
Climate Change

WMO Climate Risks, Extreme Events and Related Impacts

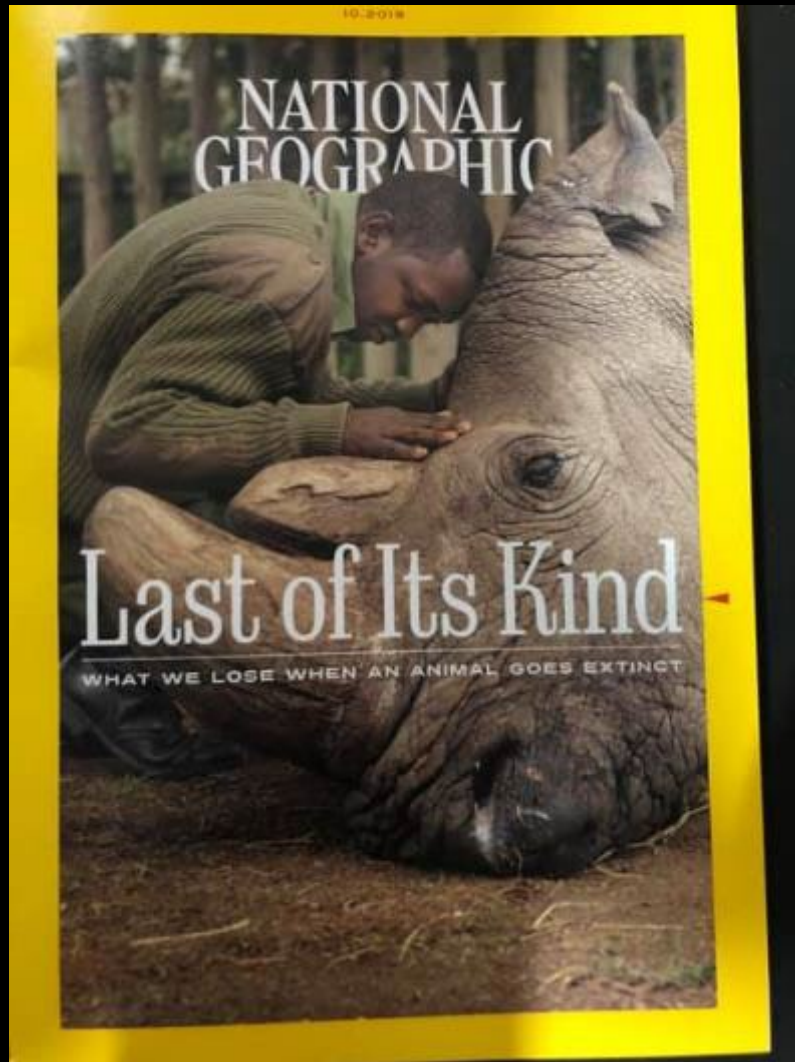


6 most acute risk domains

- Physical infrastructure
- Coastal communities
- Northern communities
- Human wellness
- Ecosystems
- Fisheries



Biodiversity loss



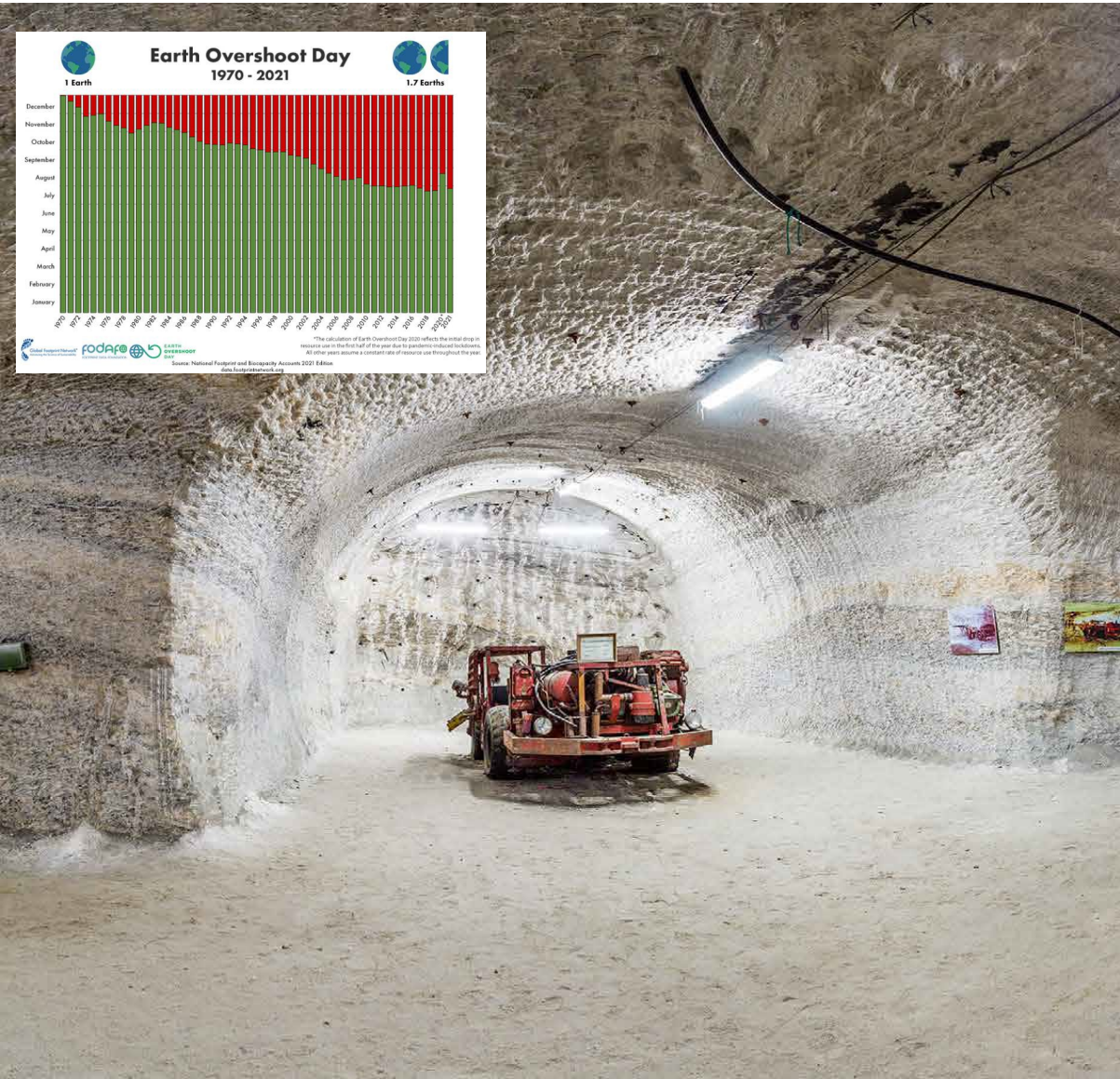
This is Sudan, pictured on the cover of National Geographic with his keeper, Joseph Wachira, as the last male Northern White Rhinoceros died.

There are two females living.

They, too, will die.

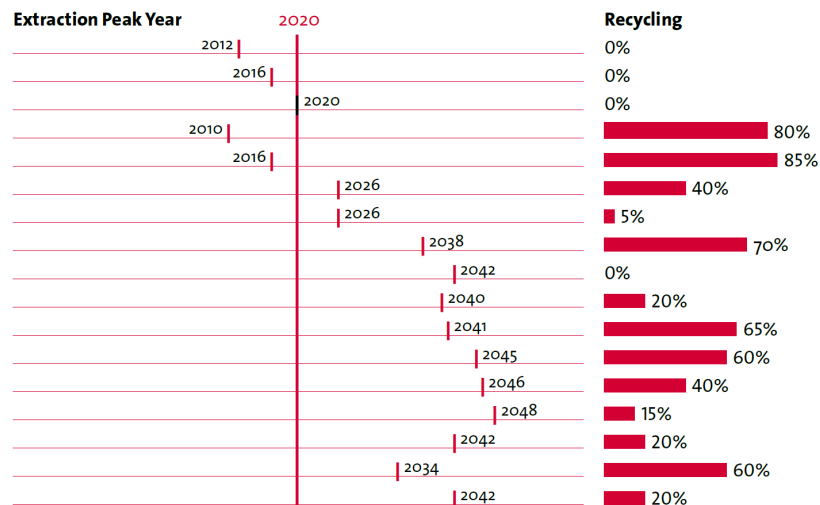
<https://www.nationalgeographic.com/animals/2019/09/life-changing-lessons-of-the-last-male-northern-white-rhino/>

We are running out of stuff

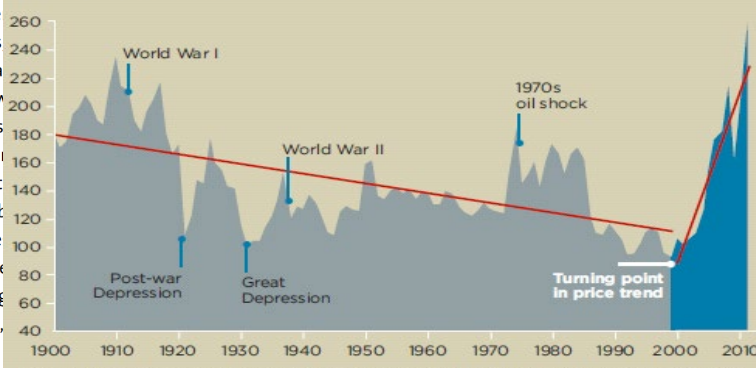


WHEN DO WORLD STOCKS OF RESOURCES END?

Resources	Applications
Oil	Transport
Gas	Heating, industry
Coal	Heating
Cadmium	Paint dye, batteries
Gold	Jewellery, investment
Cobalt+	Colourant, batteries, gamma rays
Gallium+	Electronics
Silver	Jewellery, industry
Selenium	Vitamins, solar cells
Natural stone	Construction, decoration
Lead	Batteries, electronics, construction
Niobium+	MRI scanners, steel, coins
Tin	Opto-electronics, steel, tin
Antimony+	Lead batteries, fire extinguishers, cosmetics
Indium	Electronics, solder, semiconductors
Rhodium	Catalysts, jewellery
Germanium+	Glass fibre, infrared equipment, solar cells
Bismuth+	Cosmetics, pharmacy (di)
Nickel	Coins, stainless steel, ma
Platinum+	Electrodes, thermomete
Titanium	Aircraft, glasses, bicycles
Tellurium	Processed in copper, sola
Phosphate+	Matches, fertilisers, firew
Palladium	Catalysts, hydrogen cells
Aluminium	Transport, packaging, co
Iron	Industry, steel, transport
Magnesium+	Iron and stainless steel, b
Tantalum+	Electronics, smartphone
Molybdenum	Metallurgical industry, de
Rhenium	Gas turbines, aircraft eng
Uranium	Nuclear energy, defence,
Zinc	Anti-rust, fencing, roofs,
Chromium	Stainless steel, coating o
Copper	Coins, electrical wiring, p
Lithium	Batteries, air purification
Rare Earth+	Electronics, catalysts, magnets

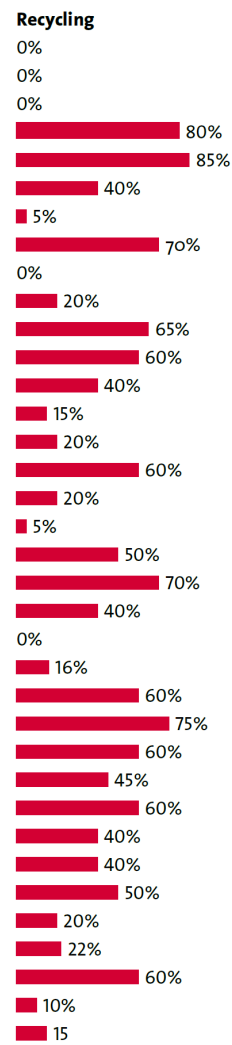


Sharp price increases in commodities since 2000 have erased all the real price declines of the 20th century
McKinsey Commodity Price Index (years 1999-2001 = 100)¹



¹ Based on an arithmetic average of 4 commodity sub-indices: food, non-food agricultural items, metals, and energy; 2011 prices based on average of first eight months of 2011.

SOURCE: Grilli and Yang; Pfaffenzeller; World Bank; International Monetary Fund; Organisation for Economic Co-operation and Development statistics; UN Food and Agriculture Organization; UN Comtrade; Ellen MacArthur Foundation circular economy team



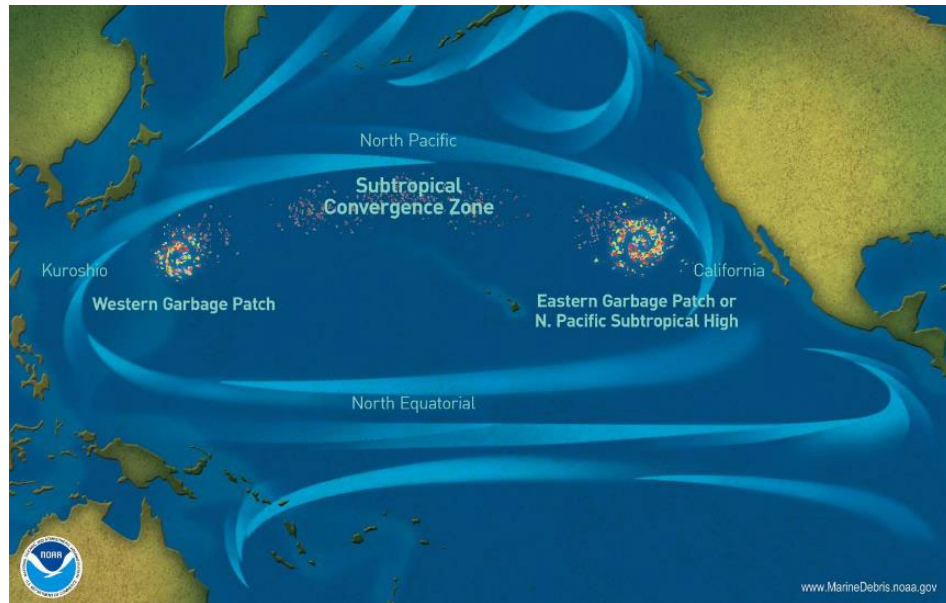
+ Are also on the list of "Critical Raw Materials" EU

Source: Harald Sverdrup and Anna Olafsdottir



We produce A LOT of garbage!

Without urgent action, global waste will **increase by 70% on current levels by 2050.**



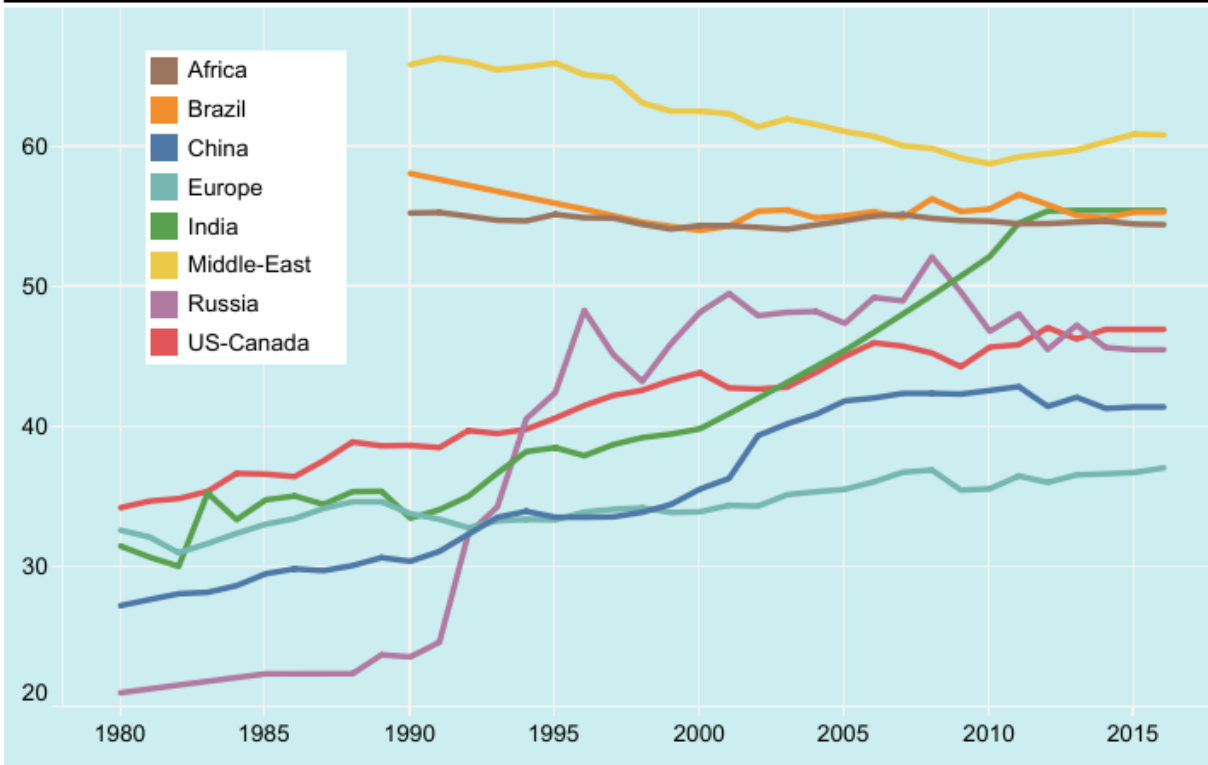
The world generates **2.01 billion tonnes** of municipal solid waste annually, with at least **33% of that not managed** in an environmentally safe manner.

World Bank Group, "What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050, 2018.

Inequality

Inequality is Rising or Staying Extremely High Nearly Everywhere

Share of national income going to top 10% of earners, 1980-2016



Source: World Inequality Lab, World Inequality Report, 2018

The world's richest **1%**

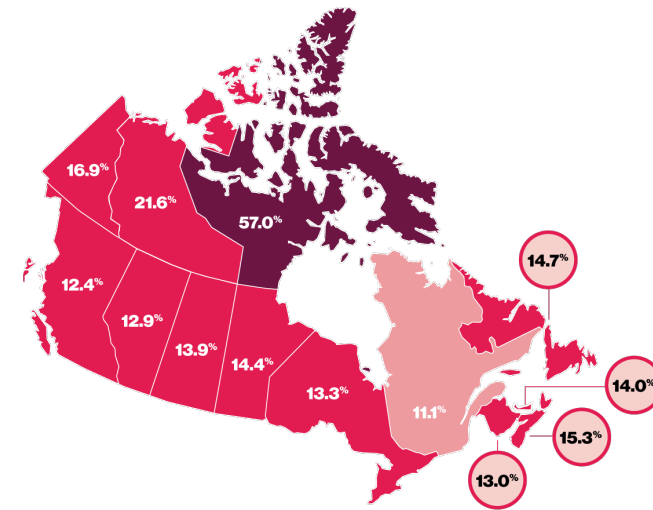
own **45%** of the world's wealth.

<https://inequality.org/facts/global-inequality/#global-wealth-inequality>

This Photo by Unknown Author is licensed under CC BY

Hunger

After decades of steady decline, the number of people who suffer from hunger – as measured by the prevalence of undernourishment – began to slowly increase again in 2015. Current estimates show that nearly 690 million people are hungry, or **8.9 percent of the world population**.



In 2017-18, **1 in 8 households** in Canada was food insecure, amounting to 4.4 million people, including more than 1.2 million children living in food-insecure households.

Human Rights

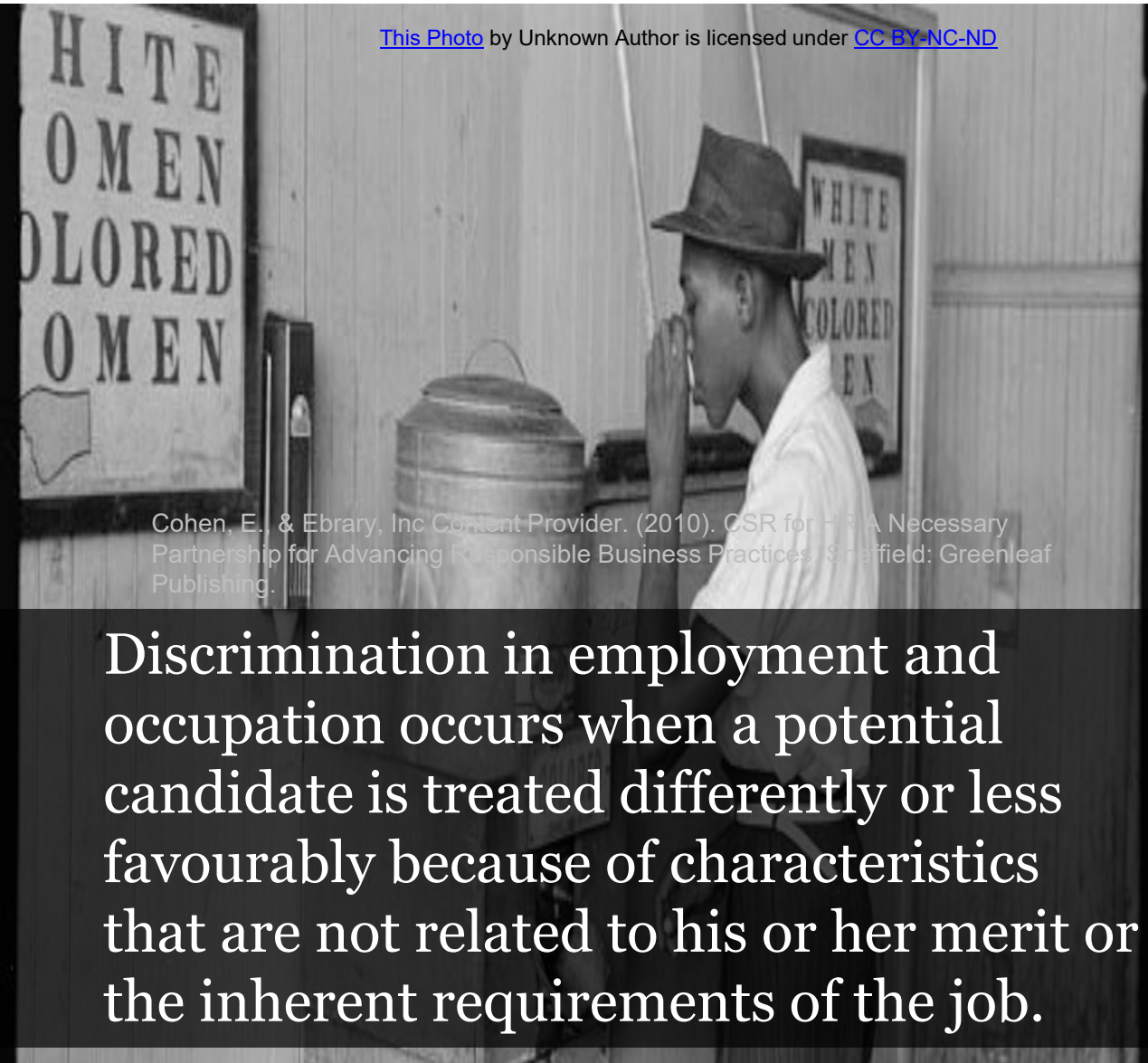
Adopted by
UN General
Assembly
in 1948
after WWII

- The Right to Life. ...
- The Right to Freedom from Torture. ...
- The Right to equal treatment. ...
- The Right to privacy. ...
- The Right to asylum. ...
- The Right to marry. ...
- The Right to freedom of thought, opinion and expression.
- The Right to work.

Elimination of Discriminations



Women are **60%** less likely than men to move from middle management to executive ranks.



[This Photo](#) by Unknown Author is licensed under [CC BY-NC-ND](#)

Cohen, E., & Ebrary, Inc Content Provider. (2010). *CSR for HR: A Necessary Partnership for Advancing Responsible Business Practices*. Sheffield: Greenleaf Publishing.

Discrimination in employment and occupation occurs when a potential candidate is treated differently or less favourably because of characteristics that are not related to his or her merit or the inherent requirements of the job.



SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY 	2 ZERO HUNGER 	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE, JUSTICE AND STRONG INSTITUTIONS 	17 PARTNERSHIPS FOR THE GOALS 	 SUSTAINABLE DEVELOPMENT GOALS



Defining Sustainability

What is Sustainability

What is Sustainability?

Sustainability is a broad concept that means many things to many people. There are also nuances and different ways of looking at it which can make it complicated. **Ultimately, Sustainability aims to address the global issues.**

WHAT IS SUSTAINABILITY?

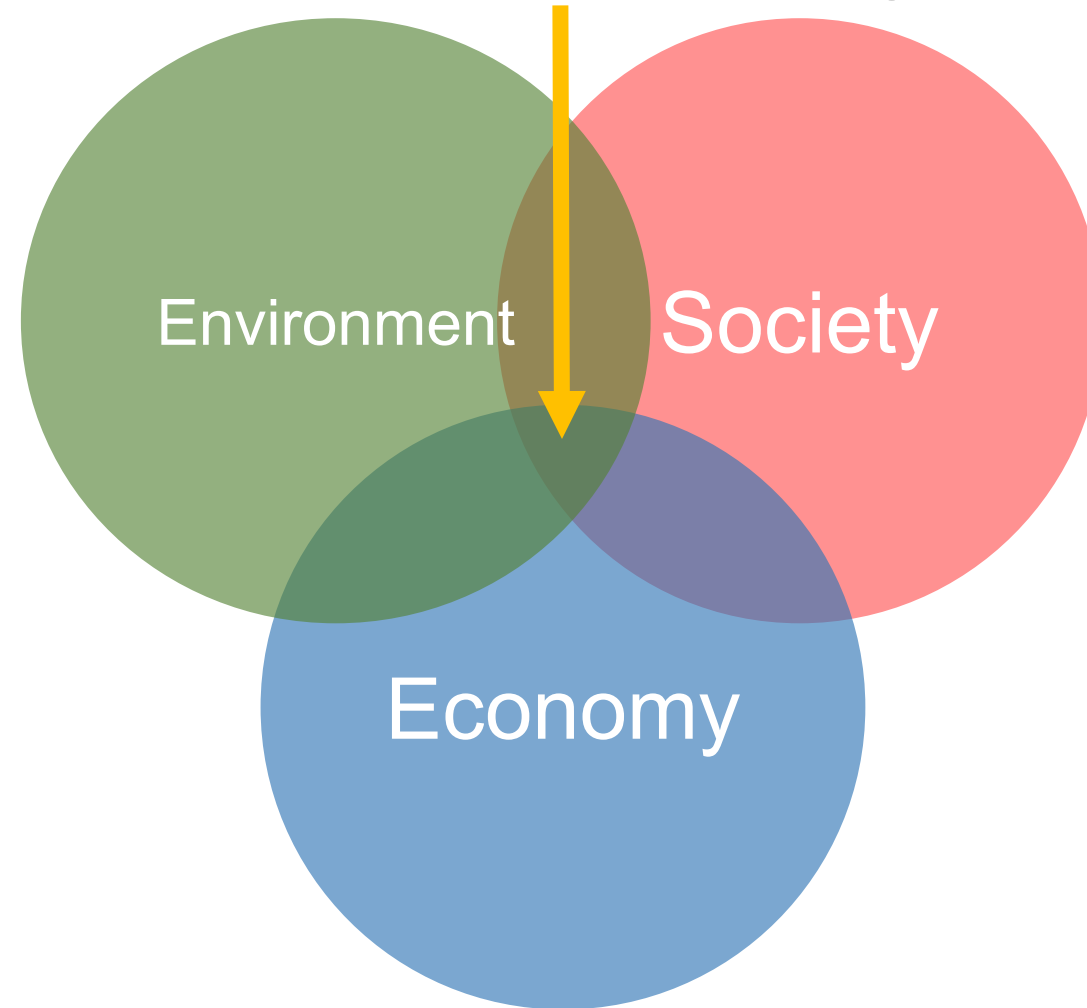
“THE ABILITY TO MEET THE NEEDS OF TODAY’S GENERATION WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS.”

“OUR COMMON FUTURE” – REPORT OF THE UN BRUNDTLAND COMMISSION 1983



Sustainability: Triple Bottom Line (TBL)

Sustainability



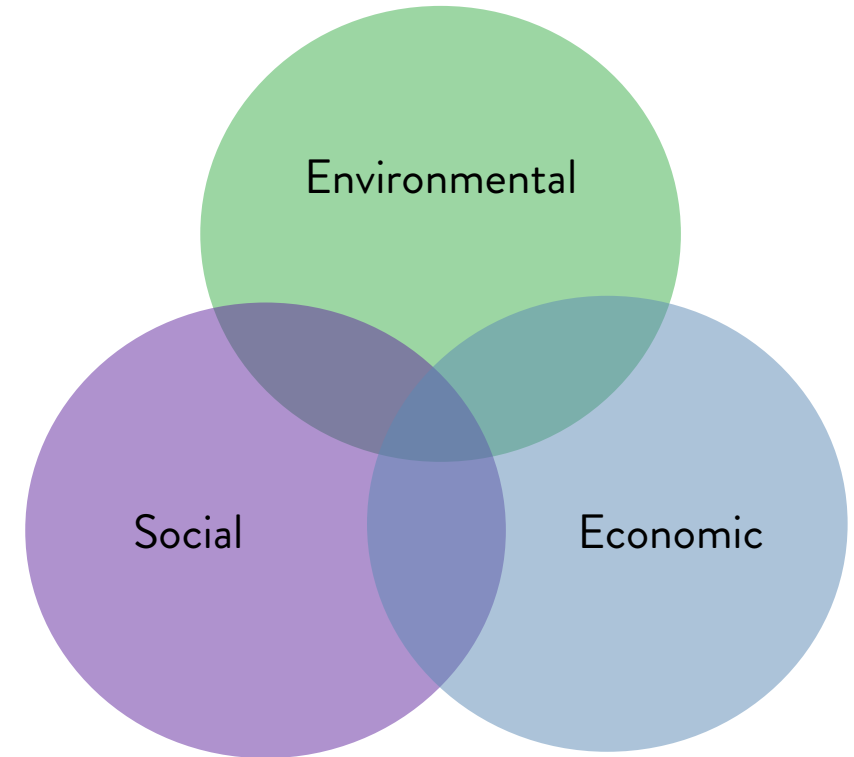
Sustainability: A Systems Model



WHAT IS A SUSTAINABLE BUSINESS?

SUSTAINABLE BUSINESSES:

- Create financial value
- Know how their actions affect the environment and actively address those impacts
- Care about their employees, customers & communities and work to make positive social change
- Understand these three elements are intimately connected to each other



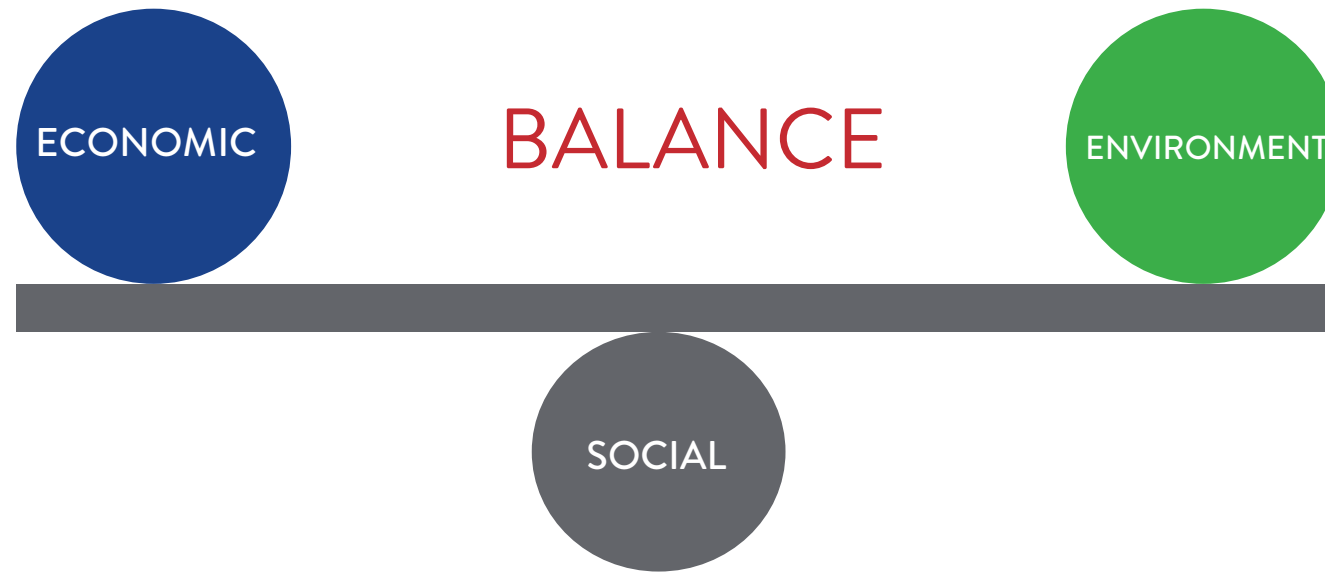
“Continuously improving social, environmental and economic performance across the value chain.”

DEFINING SUSTAINABILITY FOR YOUR BUSINESS

Every business will have their own unique definition of what sustainability means to them based on:

- Material impacts
- Factors critical to organizational success
- Stakeholder interests
- Market conditions
- Global sustainability trends

THE CHALLENGE (OPPORTUNITY)



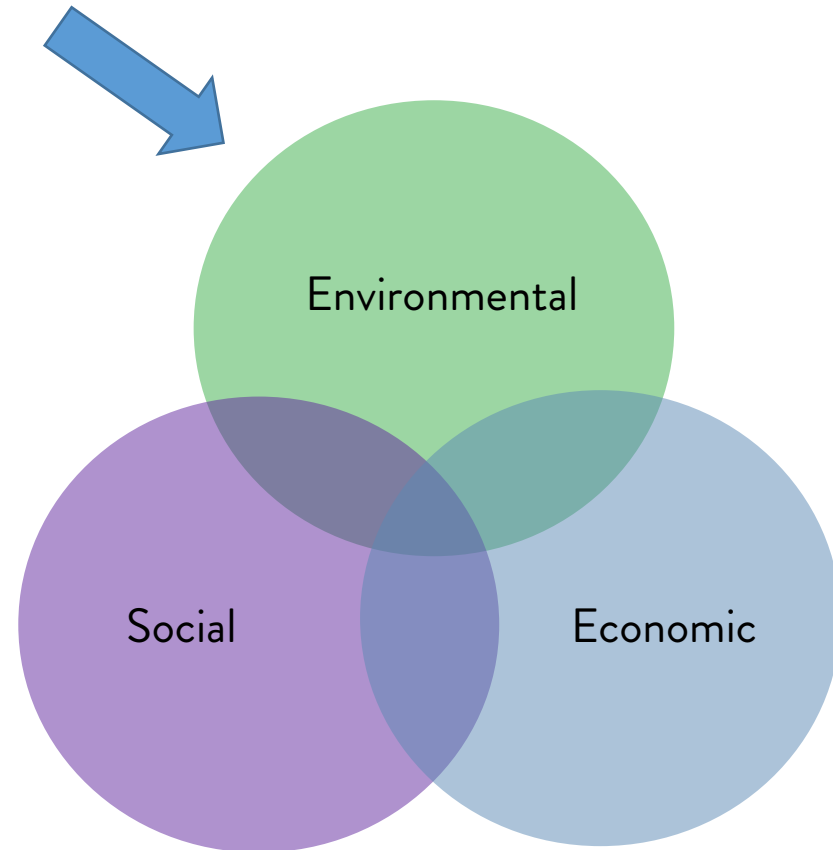
5 STAGES OF THE SUSTAINABILITY JOURNEY



GREEN/ Environmental Sustainability

GREEN IS THEN...

One dimension of sustainability -
This is what we will focus on improving today...





Sustainability

The Business Case

Big Three Justifications - Traditionally



Do the Right Thing!

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Traditionally Sustainability NOT connected to core business



21st Century Sustainability Business Case

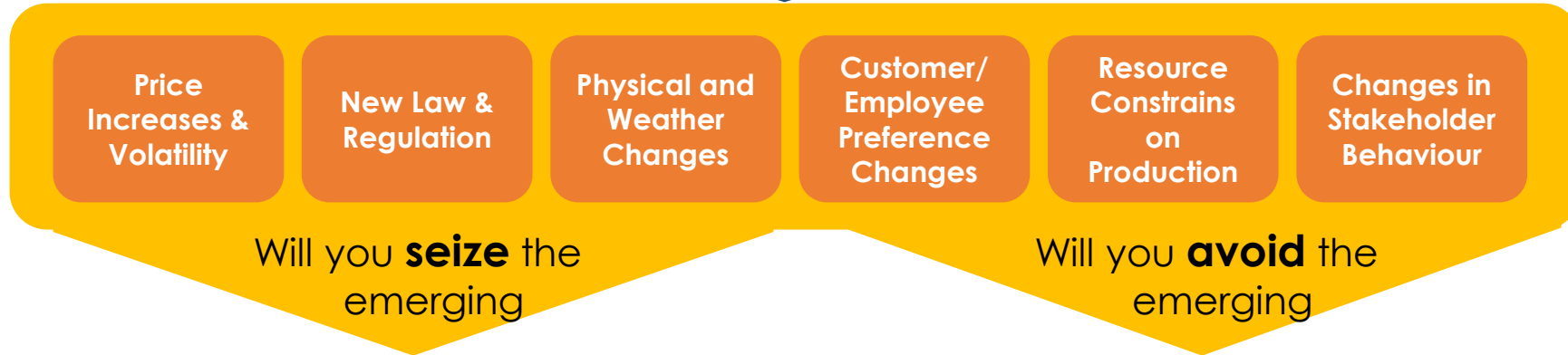


Global Megaforces of Change



COVID-19!

Impacts on Enterprises



Opportunities

- Reputation and brand
- Innovation and learning
- New products, services & markets
- Cost reduction
- Access to capital of all kinds

Risks

- Market
- Litigation
- Social
- Regulatory
- Reputation
- Physical



Adapted from "Expect the Unexpected" © KPMG 2012

DIRECT COST SAVINGS

ENERGY:	15-20% SAVINGS
WATER:	10-15% SAVINGS
MATERIALS:	5-10% SAVINGS
GARBAGE:	15-20% SAVINGS
TRANSPORTATION:	5-10% SAVINGS
EMISSIONS:	3-5% SAVINGS



Cost Savings – Veriform Example

\$2M from **100+** energy-saving projects (2006-2018)

50% electricity & natural gas savings

35% maintenance savings: \$35K/yr

15% employee turnover savings

3-6 months average pay-back period (100+ projects)

77% CO2 reduction

3X sales per kWh

25% staff increase

146% building size increase

“Ontario businessman who saved millions by going green reveals his secret,” National Observer, April 2018

RETAIN & GROW MARKET SHARE



“McDonald’s expects its suppliers to demonstrate leadership in environmental responsibility, particularly around energy...,water stewardship & waste elimination. ...”

- Jose Armario, EVP Worldwide supply chain

RETAIN & GROW MARKET SHARE

SUSTAINABILITY DRIVES INNOVATION

- Sustainability leaders are **400%** more likely than average to be innovation leaders.
- The relationship is **causal**, not just correlation.

Sustainability's ability to spark innovation can be harnessed, and it can be incorporated into organizations' innovation processes.

"Sustainability Driven Innovation: Harnessing Sustainability's Ability to Spark Innovation," Deloitte 2013.





Employee Attraction & Retention

64% of millennials won't take a job if an employer doesn't have strong CSR practices.

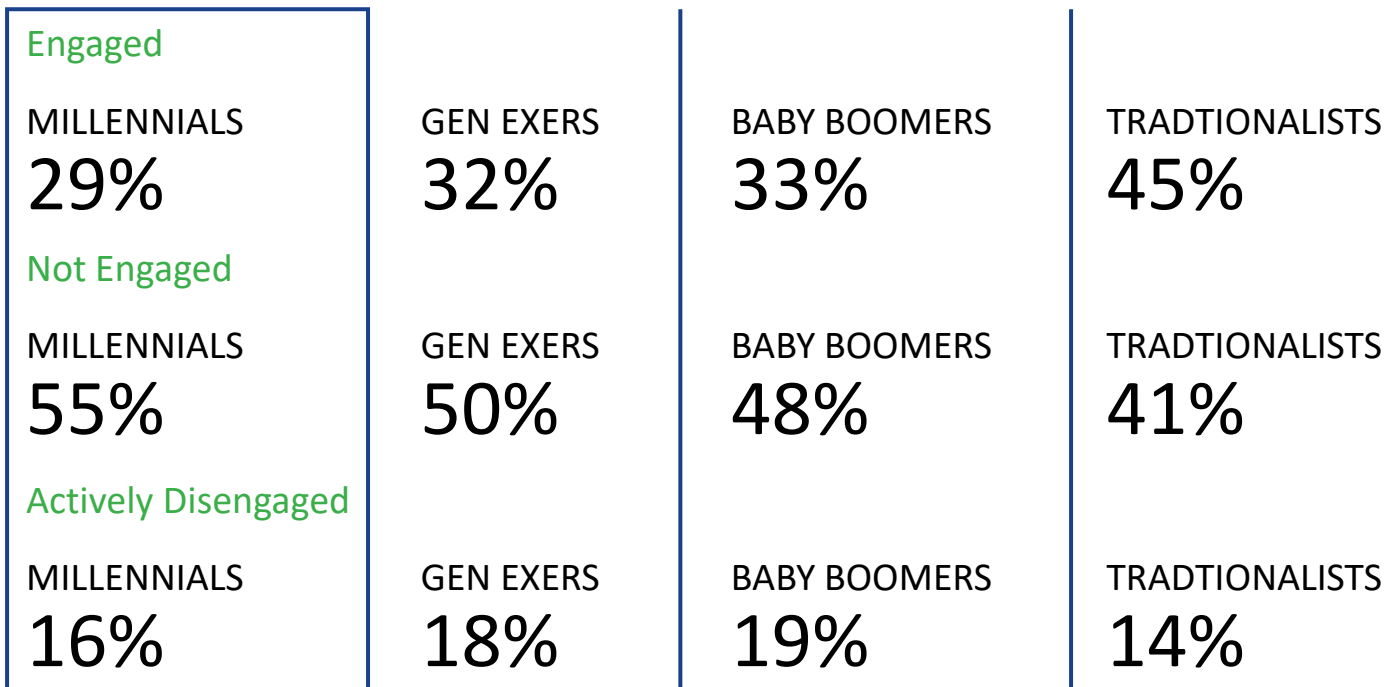
75% of millennials are willing to take a pay-cut to work for a values-driven company.

73% of employees who work at a purpose-driven company are engaged, compared to just 23%³² of those who don't.

INCREASED EMPLOYEE RETENTION & ATTRACTION

MOST EMPLOYEES DISENGAGED

MILLENNIALS ARE THE LEAST ENGAGED GENERATION AT WORK



"How Millennials Want to Work and Live," Gallup, May 2016.

RISK MANAGEMENT

SOCIAL MEDIA

INCREASING REGULATIONS

RESOURCE SCARCITY

CHANGING MARKET CONDITIONS

NATIONAL CARBON PRICING

RADICAL TRANSPARENCY

RISING ENERGY PRICES

WATER SCARCITY

REPORTING REQUIREMENTS

INCREASING STAKEHOLDER EXPECTATIONS

THRESHOLDS DECREASING

INCREASED PROFIT & SHAREHOLDER VALUE

“IN < 5 YEARS ORGANIZATIONS CAN INCREASE PROFIT BY **35%** FOR LARGER ENTERPRISES AND UP TO **50%** FOR SMALLER ORGANIZATIONS.

BOB WILLARD, Sustainable Business Case Pioneer

Every company and every industry will be transformed by the transition to a net zero world. The question is, will you lead, or will you be led?

We focus on sustainability not because we're environmentalists, but because we are capitalists and fiduciaries to our clients.

Larry Fink, CEO - Blackrock

WHAT'S IN IT FOR YOU?

MAKING A DIFFERENCE

- Exponentially larger impact at work than personal life

INCREASED PROFESSIONAL VALUE

- Sustainability experience a valuable asset / skill

TRANSFER TO YOUR PERSONAL LIFE

- Take what you learn at work home to save money





Lean and Green

The Methodology

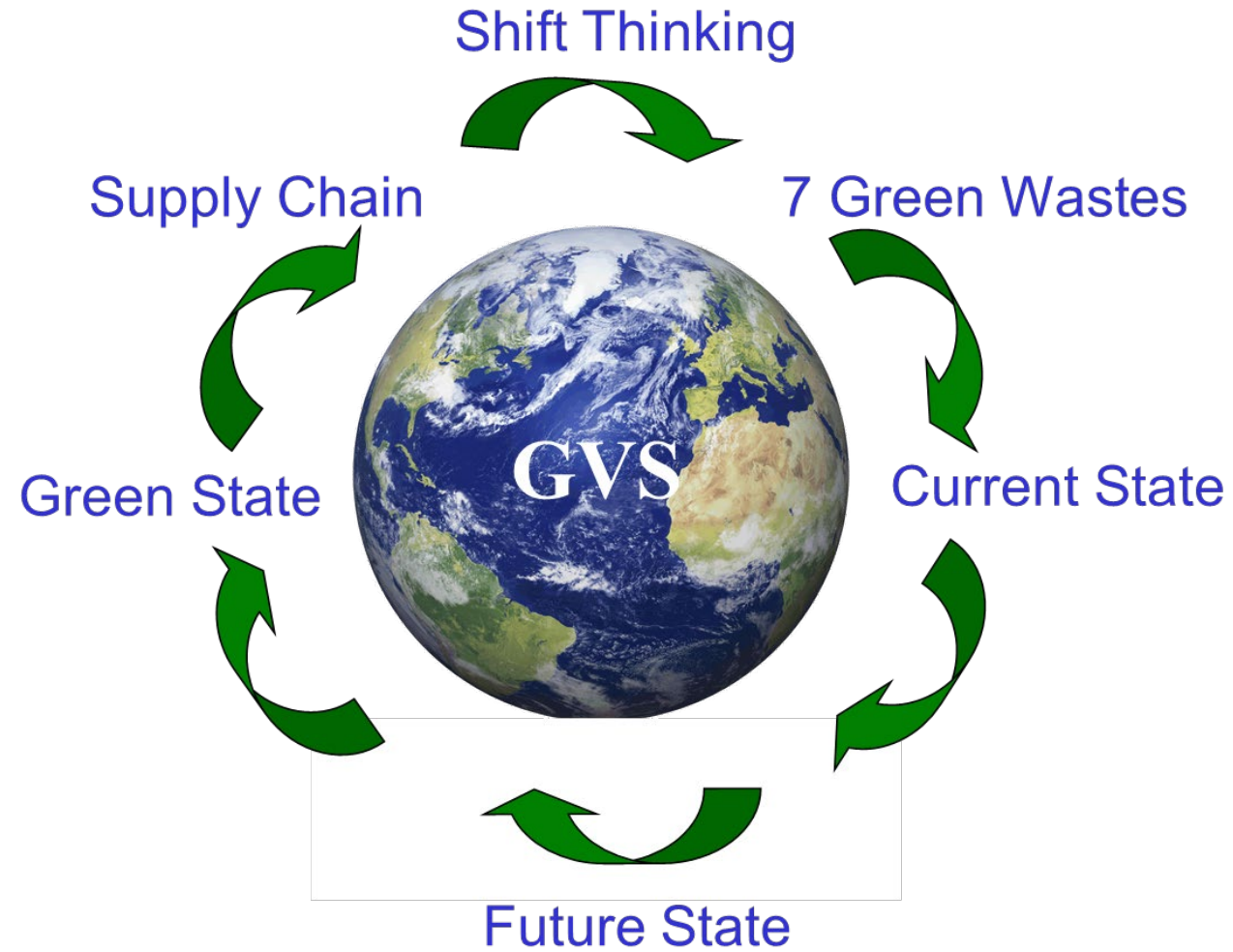


FROM LEAN TO GREEN

SHIFT IN THINKING...



LEAN & GREEN PROCESS





Lean and Green

The 7 Green Wastes

7 GREEN WASTES



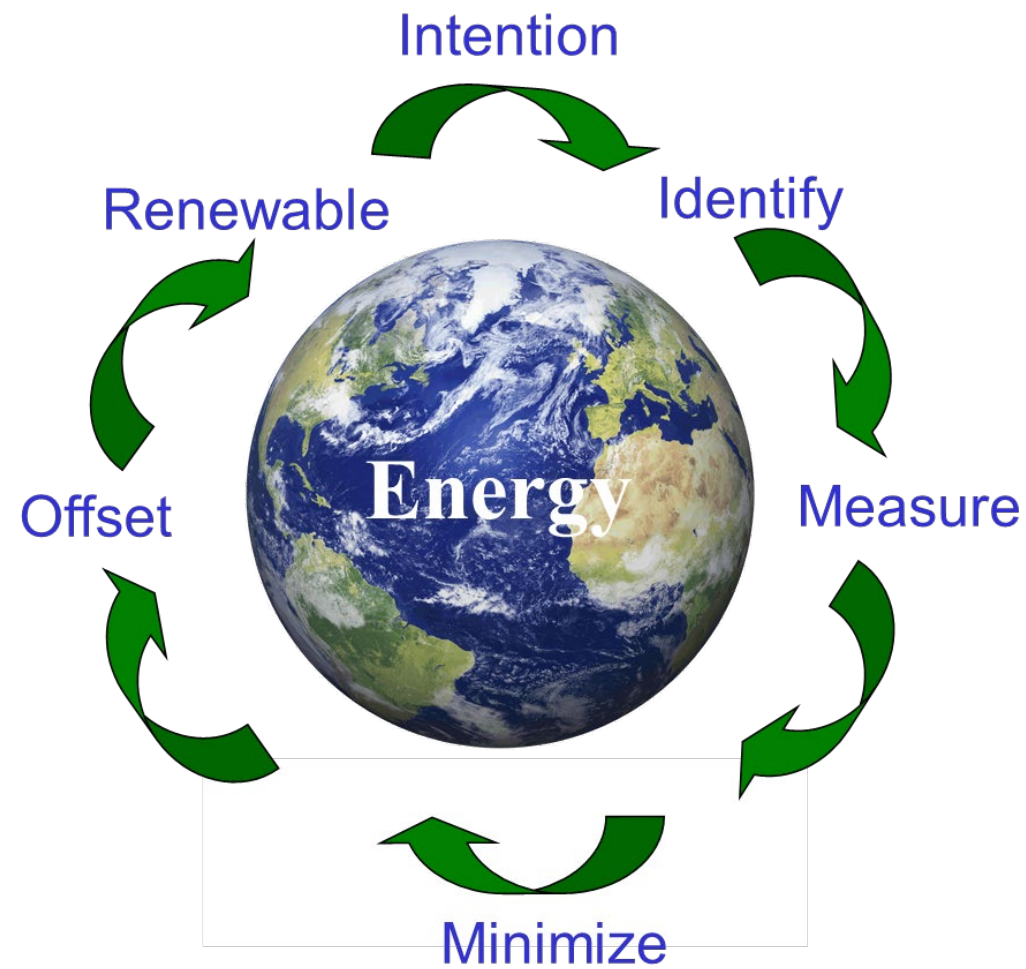


ENERGY WASTE

PAYING A THIRD PARTY TO CONSUME MORE ENERGY THAN REQUIRED, SUPPLIED FROM A SOURCE THAT HAS NEGATIVE ENVIRONMENTAL IMPACT.



ENERGY WASTE



Example



- 10% reduction in energy costs
- \$5,000 monthly savings
- < \$1,000 investment



Example

LoyaltyOne

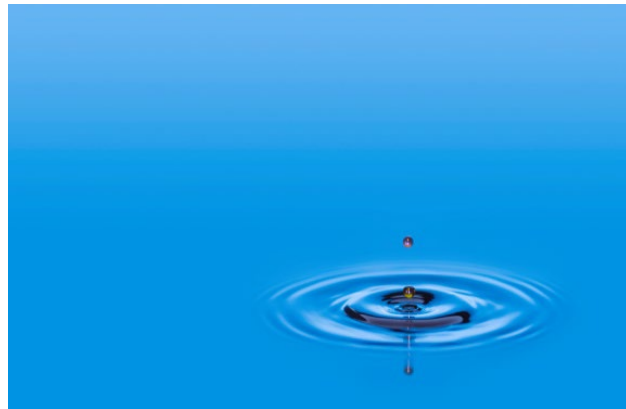


- 165 kWh solar panel installation
- Generates \$130,000/year
- Payback is 15 years
- Panels last 25-30 years



WATER WASTE

PAYING A THIRD PARTY TO CONSUME MORE WATER THAN REQUIRED, THEN PAYING THEM AGAIN TO TAKE AWAY CONTAMINATED WATER AND CLEAN IT.



WATER WASTE



Example

- Water conservation program
- Saving 59,500 m³ of water per year
- Reduction in dissolved solids in water
- Reduced requirements for natural gas
- Resulted in **\$150,000** annual savings
- Identified further savings



Example



- Rexdale racetrack
- Harvesting 11.5 million GAL/year
- Pumped into holding ponds
- Reduce storm water management
- Reduced municipal water costs

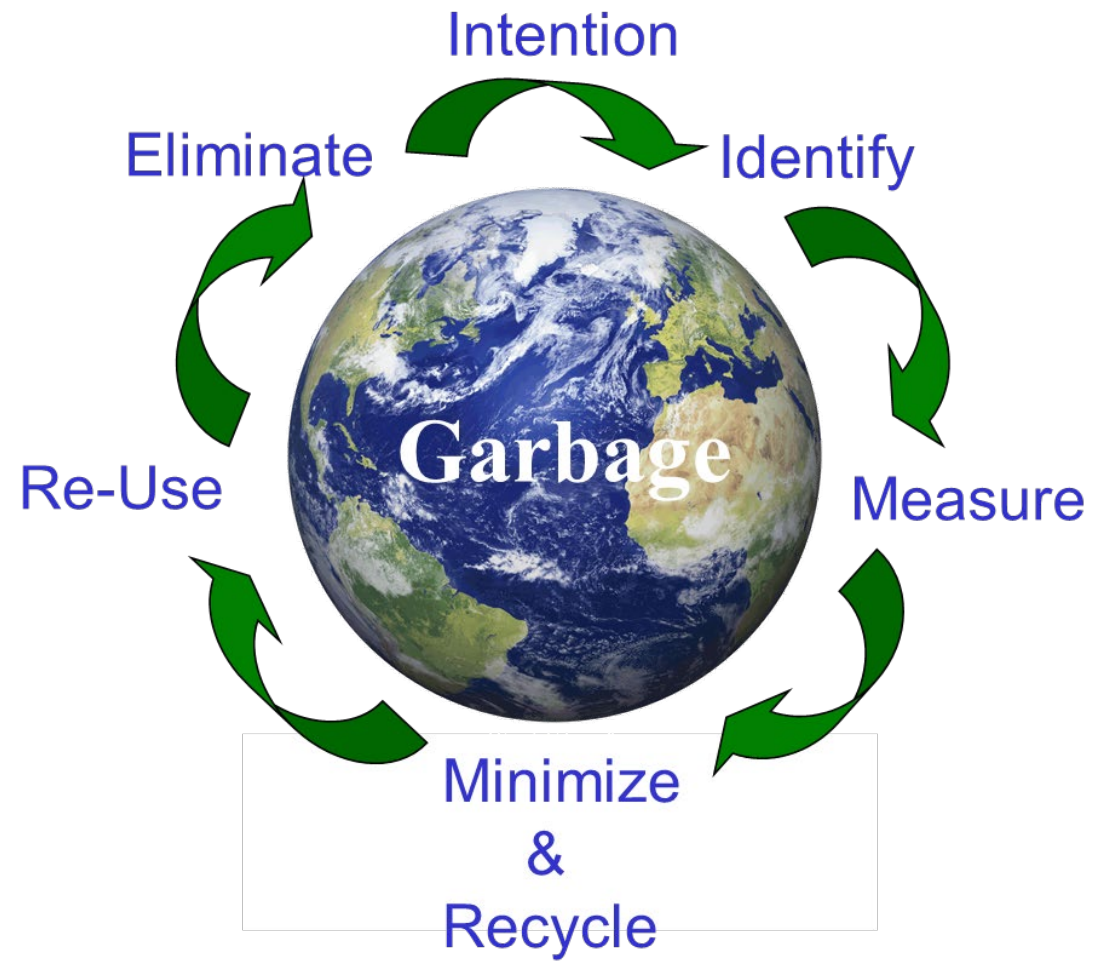


GARBAGE WASTE

PAYING FOR SOMETHING YOU WILL ONLY THROW AWAY,
SOMETHING THAT CAUSED NEGATIVE ENVIRONMENTAL IMPACT TO
CREATE AND THEN PAYING AGAIN TO HAVE IT TAKEN AWAY TO A
LANDFILL.



GARBAGE WASTE



Example



- 2013 diversion - 20%
- 2018 diversion – 99%
- Waste is a net revenue!



MATERIALS WASTE

RESULT OF A GLOBAL DESIGN FLAW - DESIGNING EXCESS AMOUNTS VIRGIN RAW MATERIALS FOR OBSOLESCENCE AND TO END UP IN THE LANDFILL.



MATERIALS WASTE



Example



- \$100,000+ savings in material costs
- 70% reduction in packaging costs
- Biodegradable Shrink Wrap
- Increased production efficiencies, reduced lead times, healthier environment



Example

 Herman Miller

- Aeron Chairs
- 53% Recycled Content
- 94% Recyclable
- Disassembly with Hand-tools
- Drives Revenues

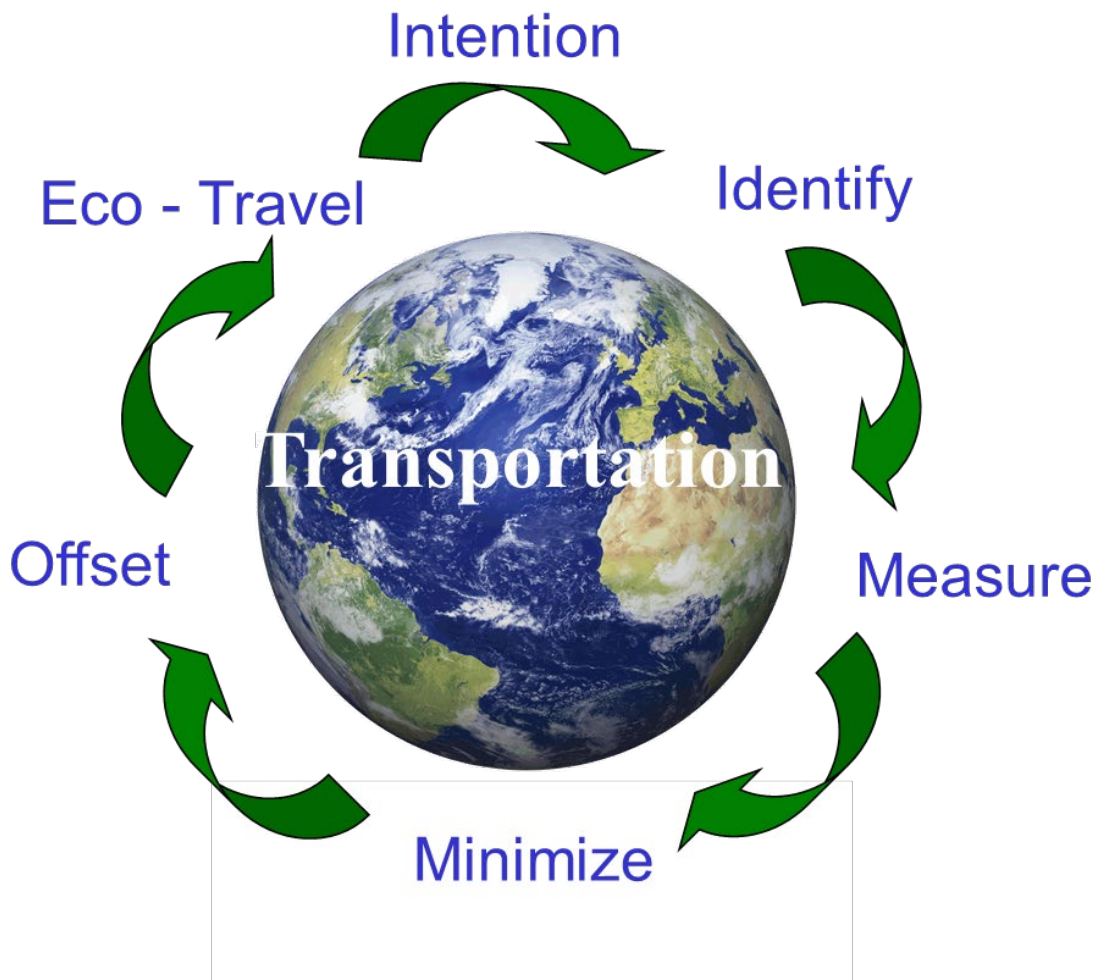


TRANSPORTATION WASTE

USING EXCESSIVE AMOUNTS OF TRANSPORTATION FROM MODES POWERED BY NON-RENEWABLE AND ENVIRONMENTALLY HARMFUL FUELS.



TRANSPORTATION WASTE



Example

- Was shipping berries by truck from BC
- Switched to rail
- Reduced CO2e by 21%
- Reduced inventory carrying costs
- Reduced transportation costs by 15%



Example

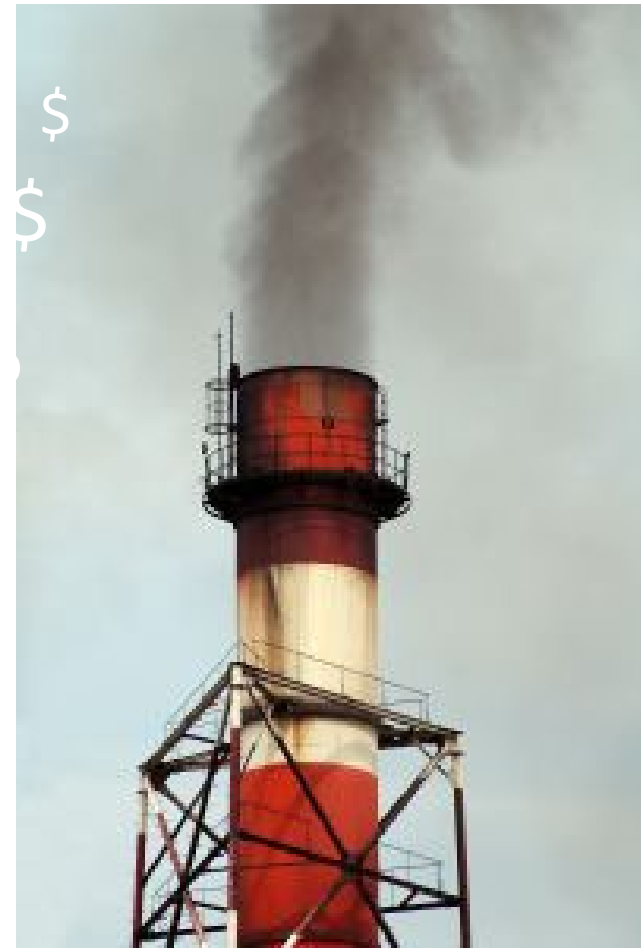


- Hydraulic hybrids
- 45-50% fuel savings
- 3-year payback

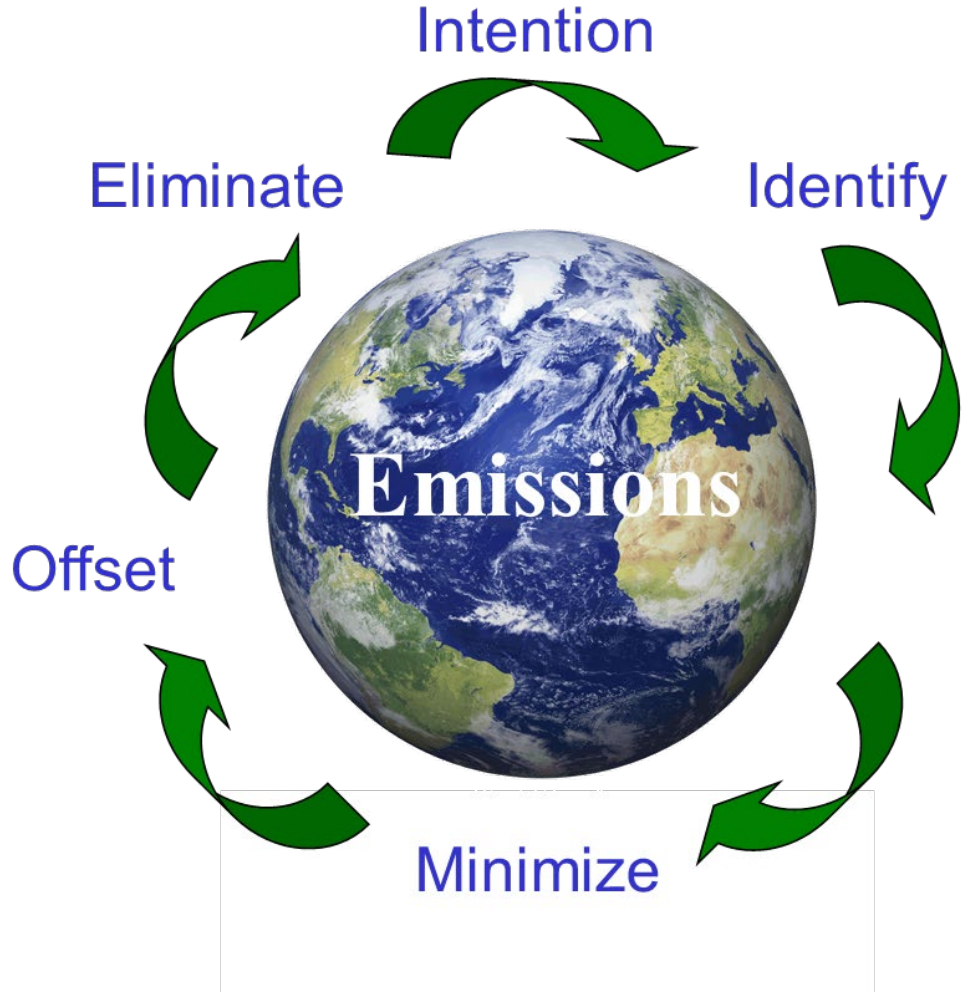


EMISSIONS WASTE

PAYING TO CREATE AND DISCHARGE
EXCESSIVE AMOUNTS OF TOXIC
POLLUTANTS INTO THE ATMOSPHERE.



EMISSIONS WASTE



Example



- Fumes to Fuel Program
- Turns VOC's from painting line in to 1500kW of daily energy
- Enough energy leftover to feed into plant

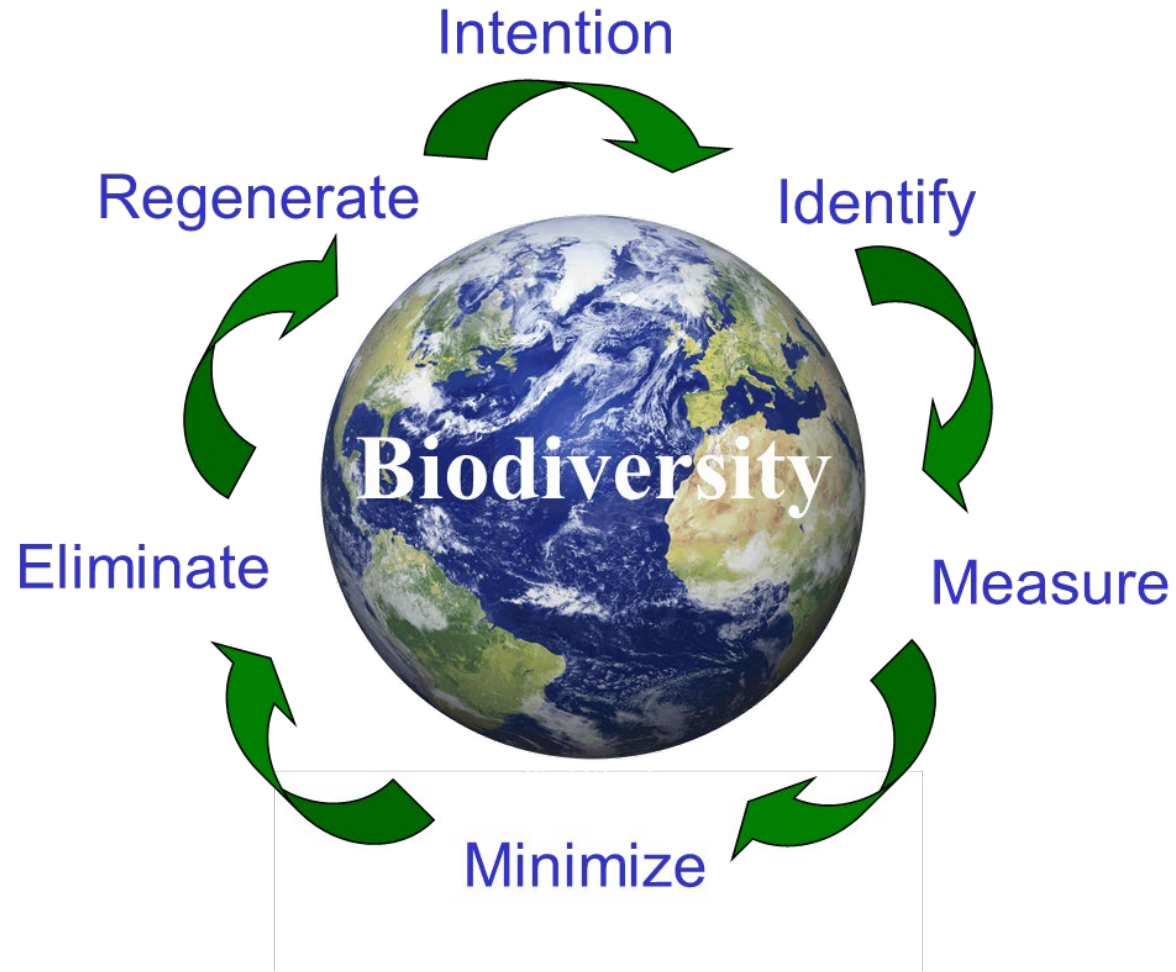


BIODIVERSITY WASTE

INCURRING COSTS TO DESTROY
BIODIVERSITY THAT RESULT IN LARGE,
NEGATIVE IMPACTS ON THE
ENVIRONMENT.



BIODIVERSITY WASTE



Example



Bentall Kennedy
FOREVERGREEN

- Green landscaping program
- Employees & tenants love it!
- 3% premium year 1
- Costs reduce each year



Example



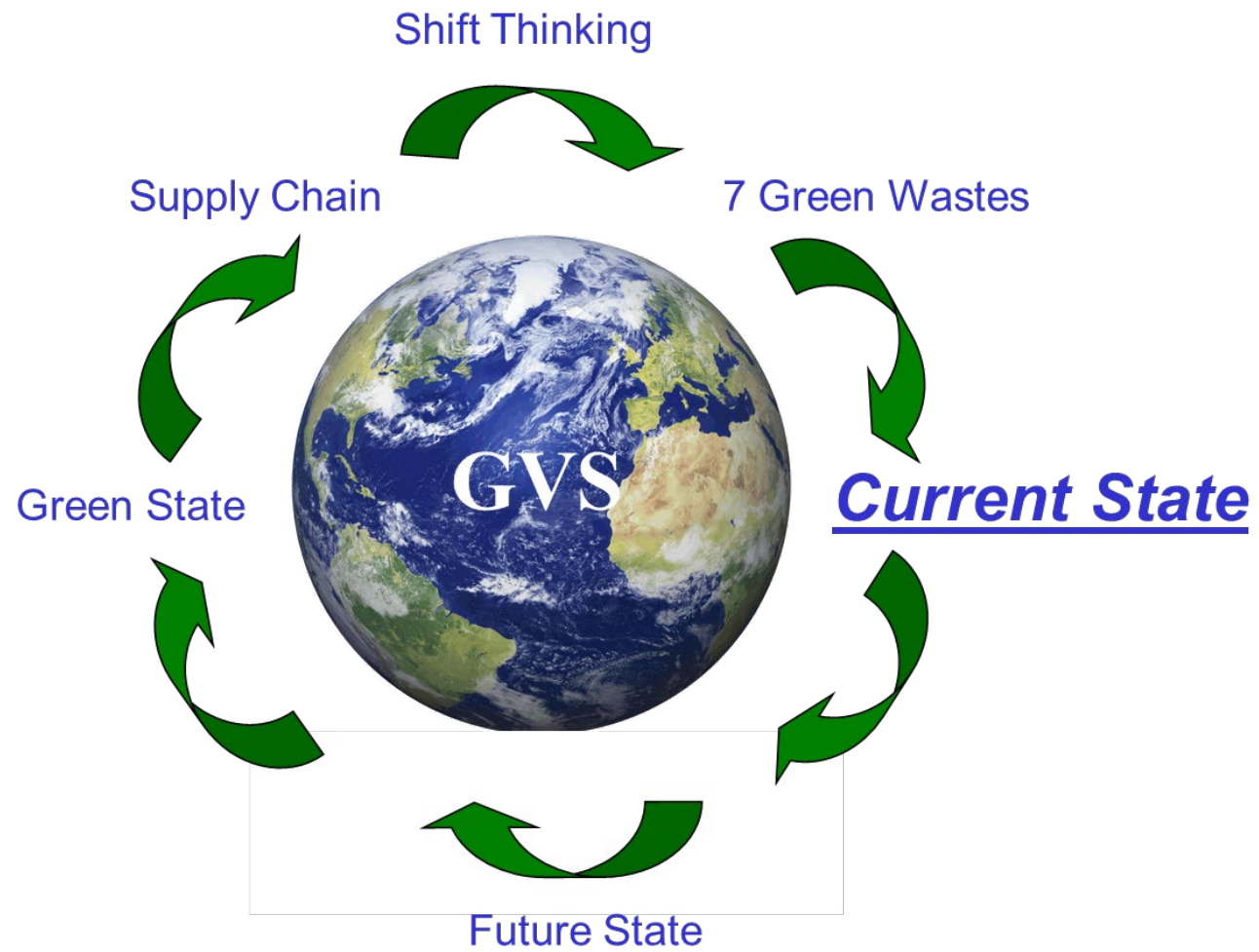
- 69,000 square foot green roof
- Reduced heating & cooling costs
- Storm-water management
- Breeding ground for local birds





Lean and Green
Current State: Identify

CURRENT STATE



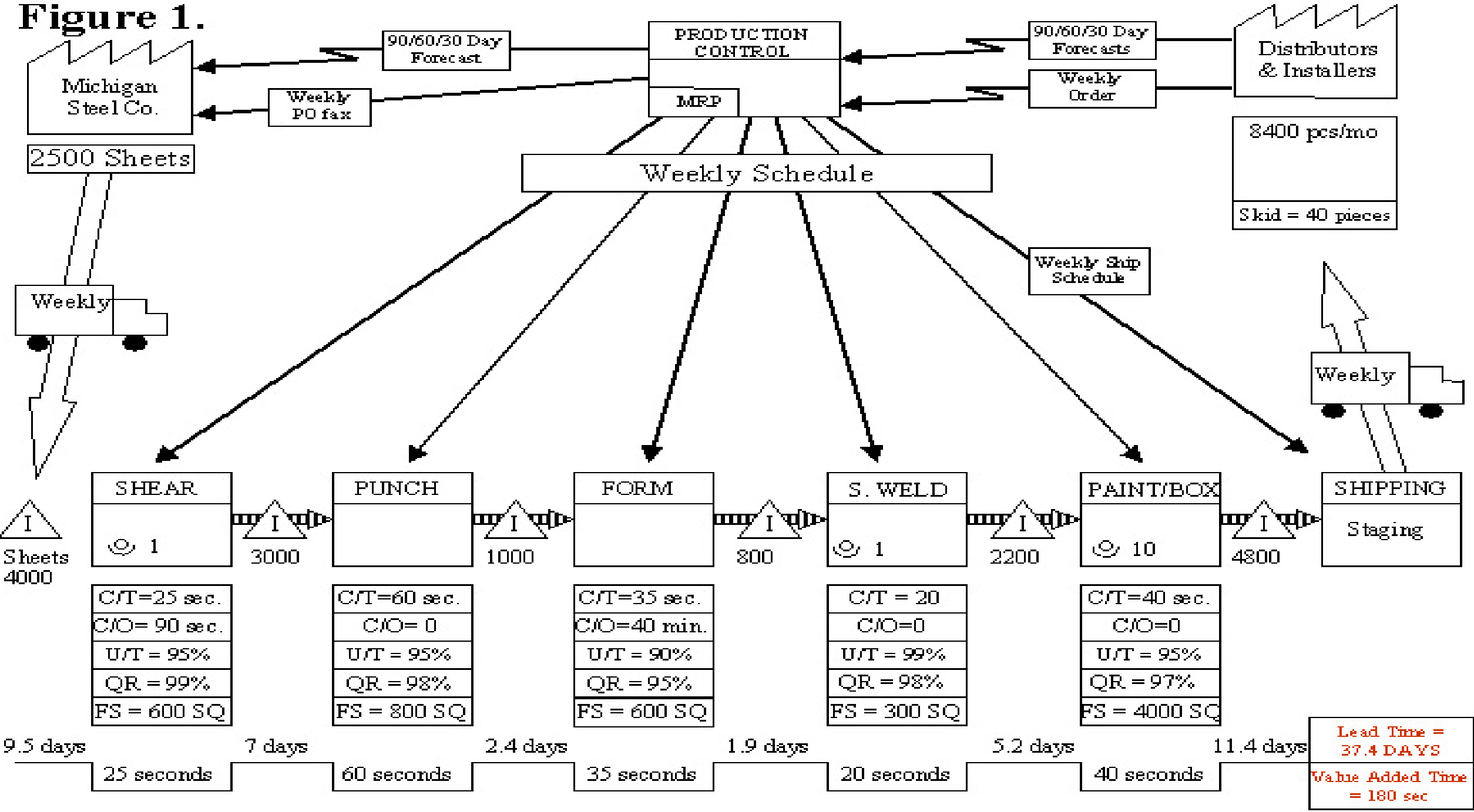
LEARNING TO SEE GREEN



CREATING A GREEN VALUE STREAM MAP

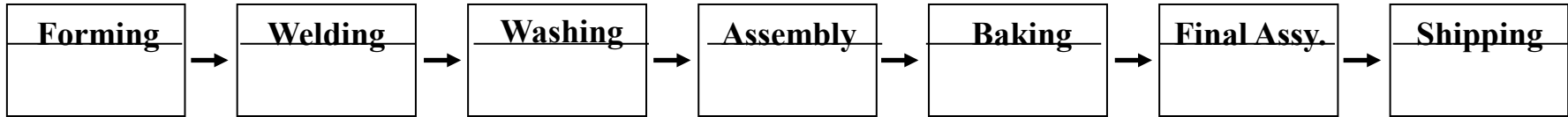
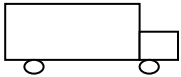
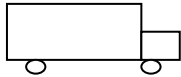


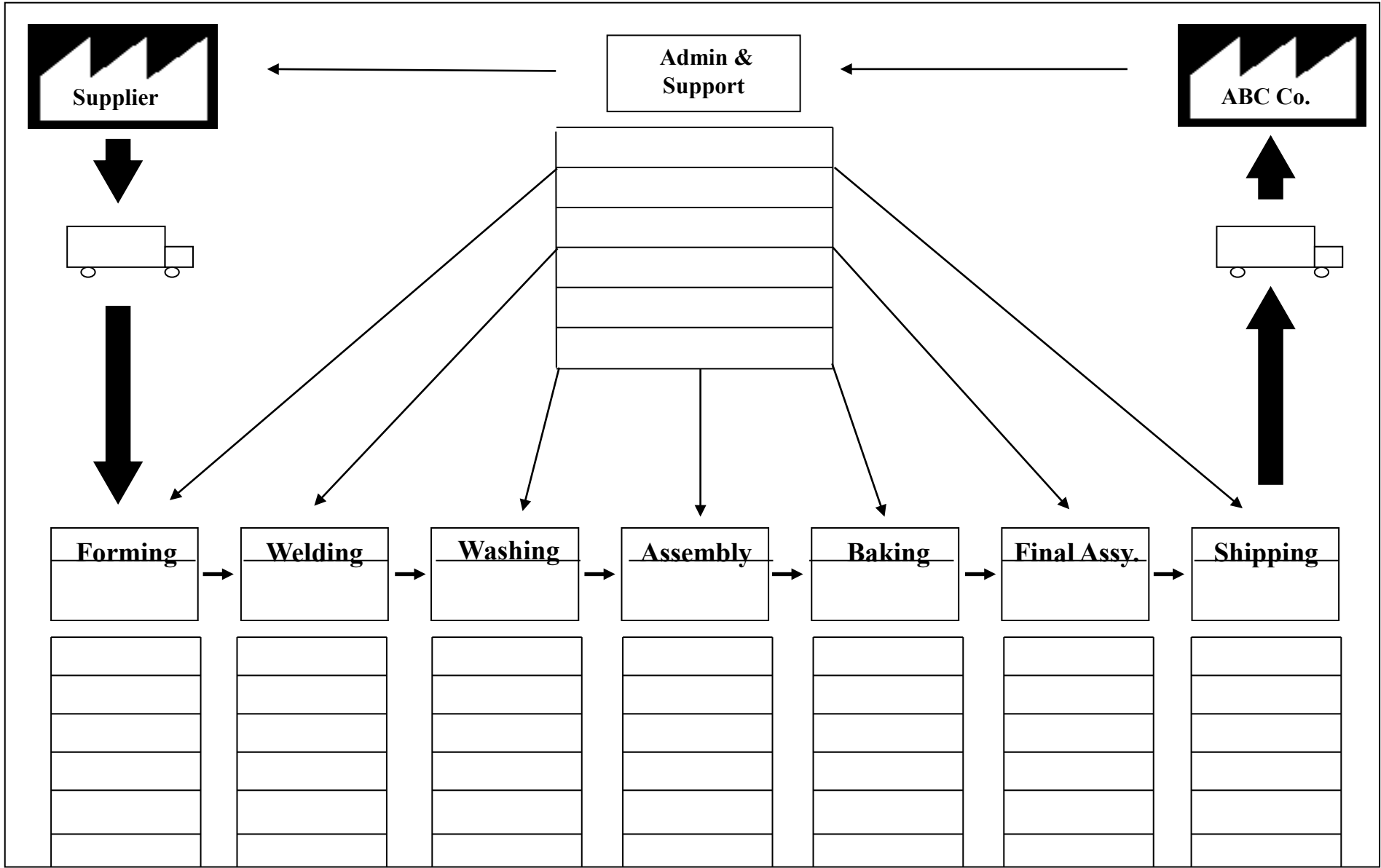
Figure 1.





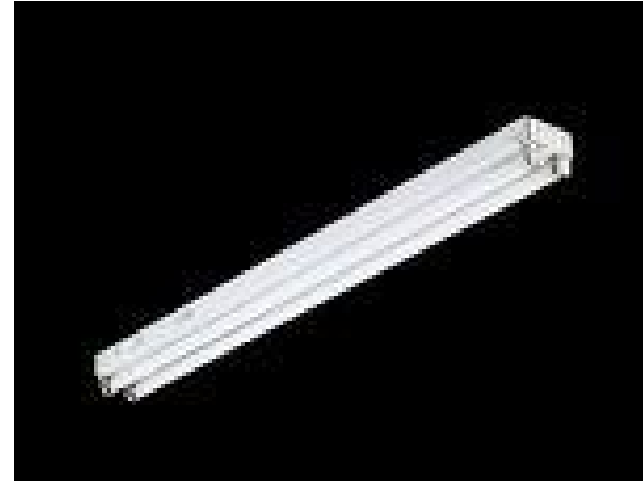
**Admin &
Support**





ENERGY - IDENTIFY

WHAT IS CONSUMING ENERGY?



WATER - IDENTIFY

WHAT IS CONSUMING WATER?



MATERIALS - IDENTIFY

WHAT MATERIALS ARE BEING CONSUMED?



GARBAGE - IDENTIFY

WHERE IS THERE GARAGE?



TRANSPORTATION - IDENTIFY

WHERE IS TRANSPORTATION REQUIRED?



EMISSIONS - IDENTIFY

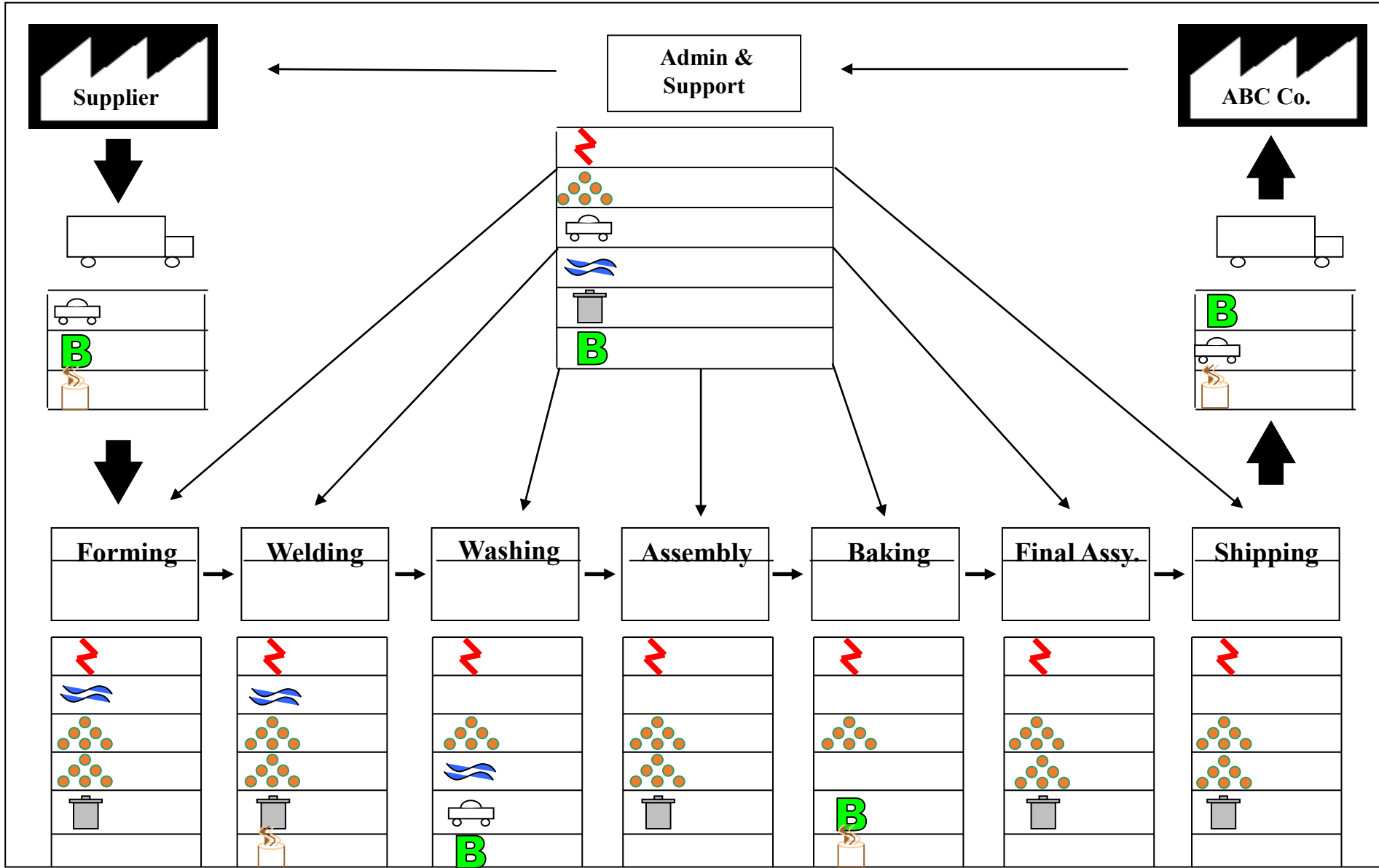
WHERE ARE THE EMISSIONS ARE COMING FROM?



BIODIVERSITY - IDENTIFY

WHERE HAS BIODIVERSITY DESTRUCTION OCCURRED?
IS IT ONGOING?





IDENTIFYING GREEN WASTE

The Idea here is to...

- Understand what green wastes you have and where.
i.e energy used in forming, water used in cooling
- Understand main contributors to those wastes:
i.e forming machine, cooling tanks
- Focus your attention to drive greatest value of efforts

Identify – Breakout: 10 Mins

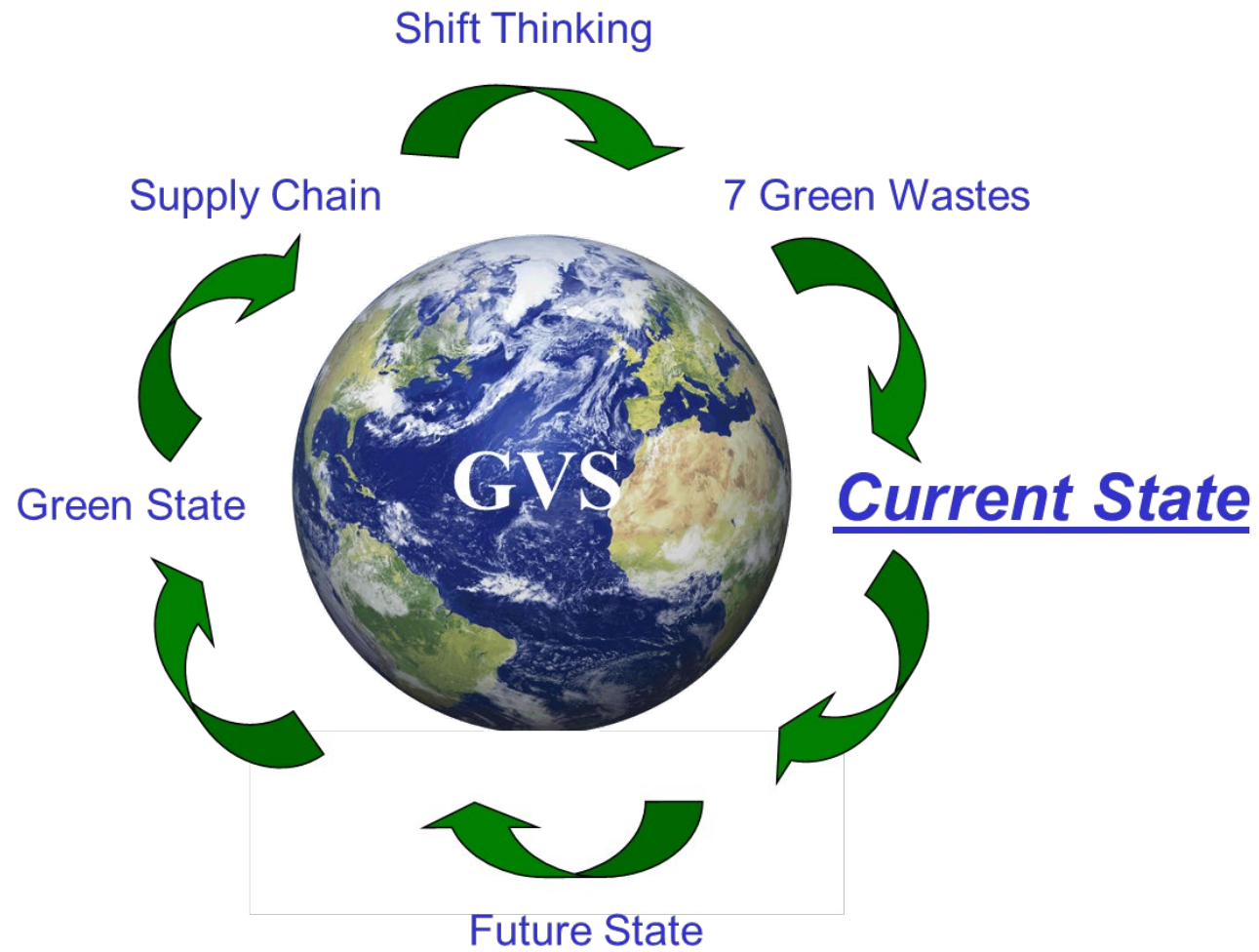
- What are your main green wastes? i.e Energy, Water, Materials...
- Where are they? i.e Blanking machine in forming area....
- Share with your group





Lean and Green
Current State: Measure

CURRENT STATE



ENERGY - MEASURE

HOW MUCH ENERGY IS BEING CONSUMED?

RATE: (kW)

USAGE: Time (t)

$$\text{CONSUMPTION (kWh)} = \text{kW} \times t$$

$$\text{COST (\$)} = \text{kWh} \times \text{Kwh Charge}$$

WATER - MEASURE

HOW MUCH WATER IS BEING CONSUMED?

FLOW: Gallons (G)/Min

USAGE: Time (t)

$$\text{CONSUMPTION (G/Min)} = \text{G/Day}$$

$$\text{COST (\$/Day)} = (\text{G/Day}) \times (\$/\text{G})$$

GARBAGE - MEASURE

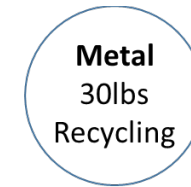
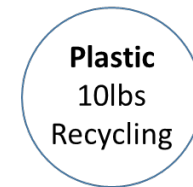
HOW MUCH GARBAGE IS THERE? WHAT IS IT MADE OF?

WEIGH CONTENTS BY MATERIAL:

PLASTIC, METAL, PAPER, GLASS, WOOD, ORGANIC, HAZ MAT, OTHER

NOTE WASTE STREAM:

RECYCLE / COMPOST / RE-USE / WASTE TO ENERGY / LANDFILL



Total Waste Generated: 90 lbs

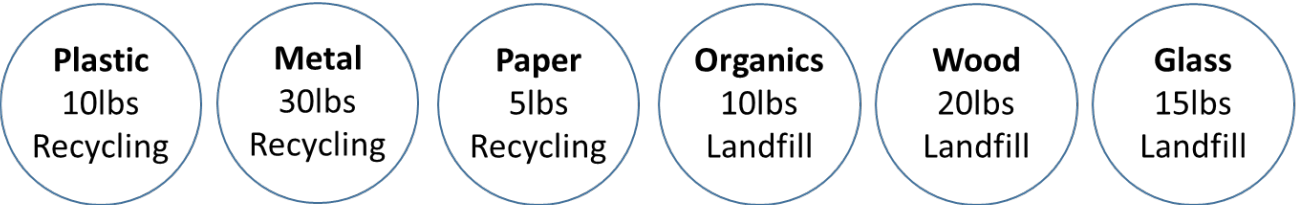
GARBAGE - MEASURE

ANNUAL WASTE GENERATION

(SAMPLE WEIGHT x OPERATING DAYS x OPERATION WKS) / YEAR

DIVERSION RATE

WEIGHT OF DIVERTED MATERIAL / TOTAL MATERIAL



Total Waste Generated: 90 lbs

Diverted: 45lbs Landfill: 45lbs

Annual Waste Generation: $90\text{lbs} \times 5 \text{ days} \times 50 \text{ wks} = \underline{22,500 \text{ lbs}}$

Waste Diversion Rate: $45\text{lbs} \text{ diverted} / 90\text{lbs} \text{ total} = \underline{50\% \text{ Diversion Rate}}$

GARBAGE - MEASURE



MATERIALS - MEASURE

INPUT



QUANTITY



RECYCLED CONTENT
ORGANIC CONTENT

TRANSPORTATION - MEASURE

HOW FAR HAVE YOU TRAVELED?
YOUR PRODUCTS?



EMISSIONS - MEASURE

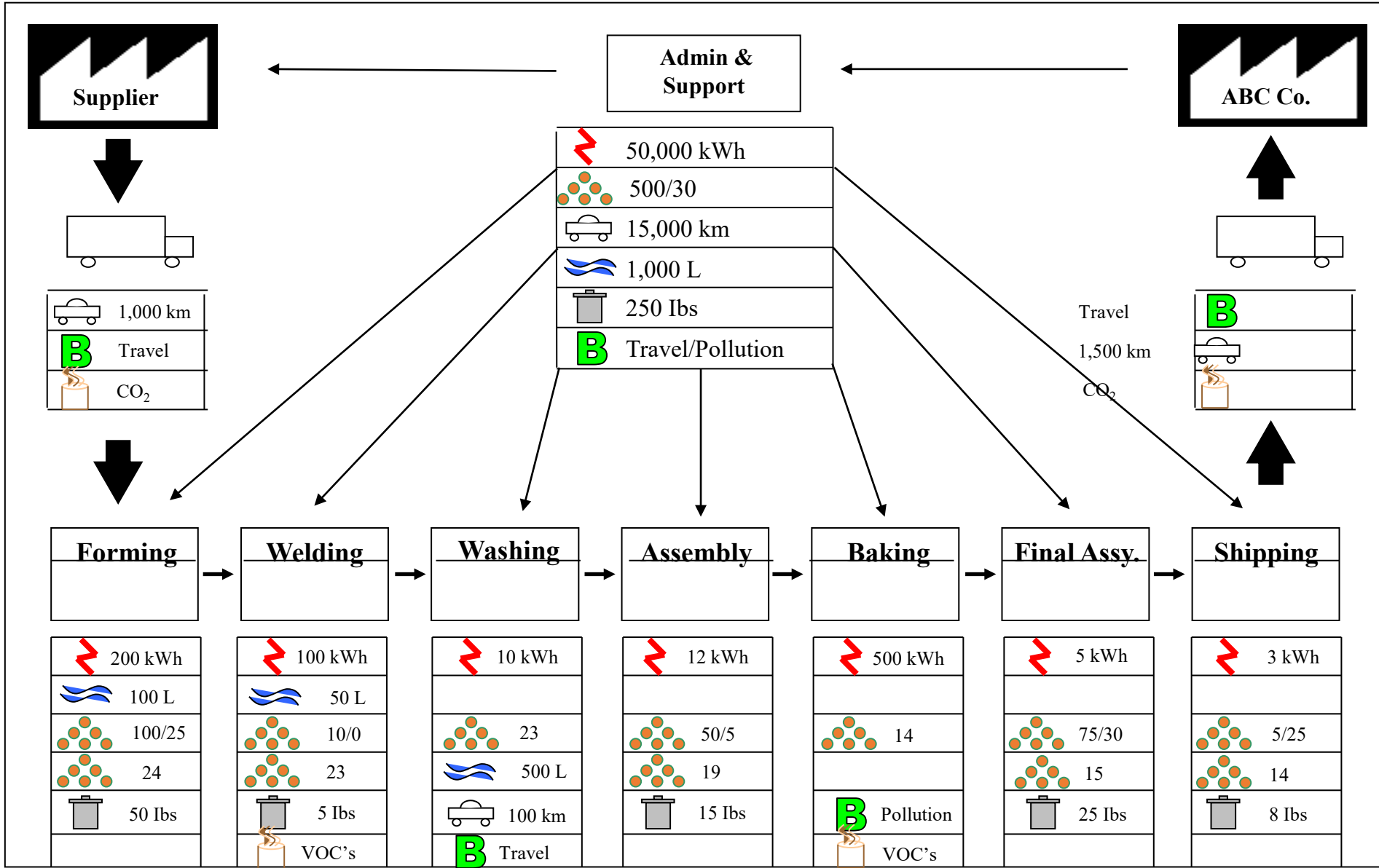
HOW MUCH EMISSIONS ARE THERE?
WHAT ARE THEY MADE OF?



BIODIVERSITY - MEASURE

WHAT BIODIVERSITY WAS THERE PREVIOUSLY?
WHAT IS THERE TODAY?





MEASURING GREEN WASTE

The idea here is to...

- Understand biggest environmental impacts
- Understand what's driving those impacts
- Focus in your efforts to reduce impacts

Also, need ability to manage at a higher level....

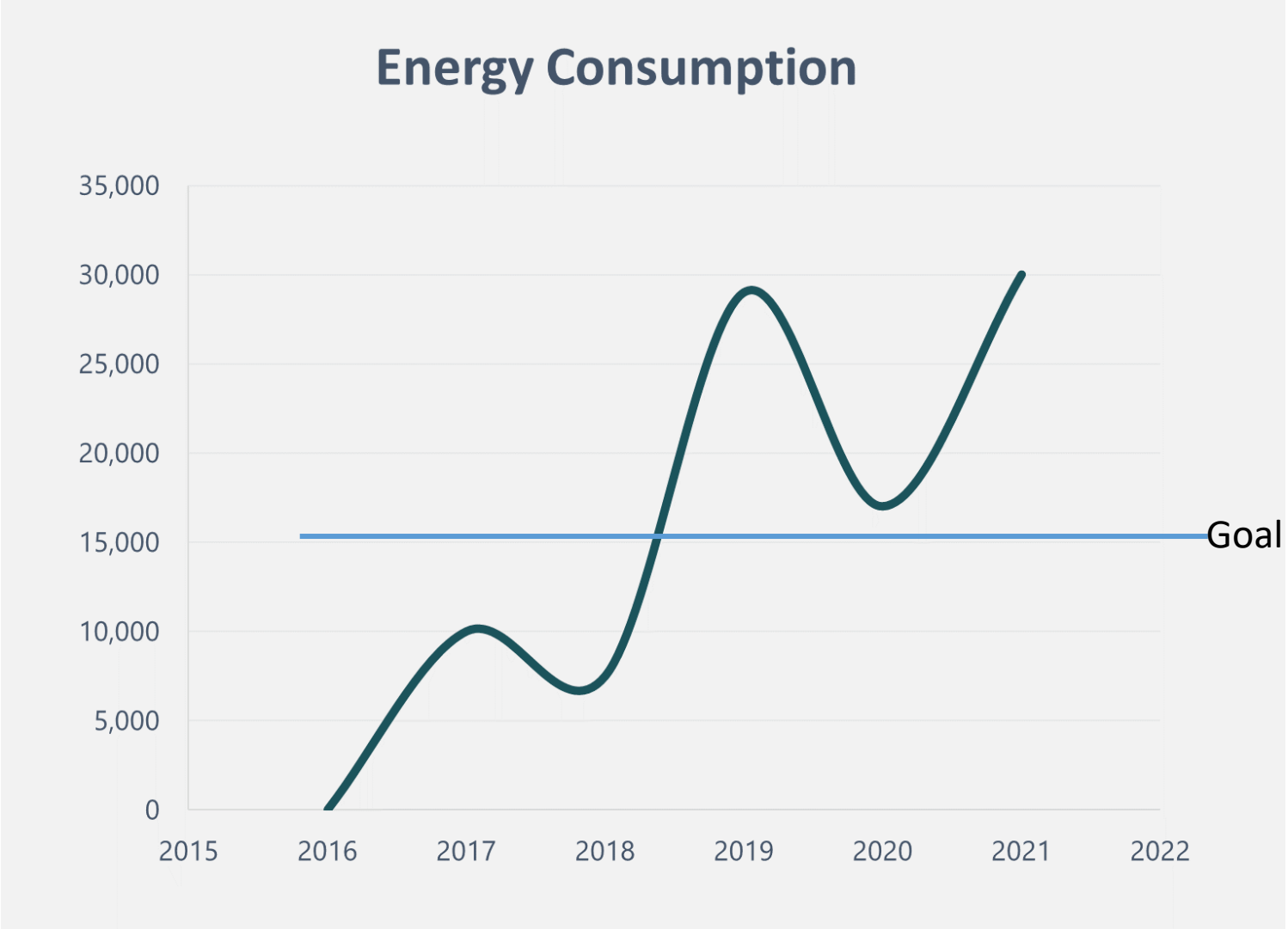
DEVELOPING KPI's & METRICS

NEED TO MOVE BEYOND DETAILED MEASUREMENTS TO BROADER MEASUREMENT OF OVERALL PERFORMANCE.

1. Determine type of metric: absolute vs normalized
2. Determine time frame (weekly/monthly/quarterly etc.)
3. Determine base year
4. Gather data in table
5. Plot to graph
6. **Set goal**



Key Performance Indicators



Measuring the Performance Gap

- **Goal:** *Reduce energy 10% by December 31, 2021*
- **How much is 10%?** (What are you hunting for?)
 - Say the current consumption is 500,000 kWh
 - 10% = 50,000 kWh
- **50,000 kWh is the Performance Gap**



Understanding the Financial Impact

- What is/will be the financial cost of your green wastes?
i.e $500,000 \text{ kWh} \times 0.07/\text{kWH} = \$35,000$
- What cost savings/avoidance opportunity does this present?
i.e $10\% \text{ reduction is } \$3,500$
- What investment is required to realize savings?
i.e $\$1,500$
- What is the ROI?
i.e $\$1,500/\$3,500 = 0.43 \text{ Years or just over } 5 \text{ months}$



A Few Notes on ROI...

- Ensure you include all costs i.e installation
- There may additional savings from:
 - reduced procurement, maintenance and disposal costs
- There may also be further benefits such as:
 - safety, quality, moral etc.
- ROI can be improved with rebates, grants, financing
- Competing against other investment opportunities so make yours as strong as possible



Financial Considerations

- Carbon Pricing:
 - *Currently \$40/tonne ratcheting up to \$50 next year*
 - *May climb to \$170/tonne by 2030*
 - *Typically, cost is added at point of purchase*
- Extended Produce Responsibility:
 - *Shifts disposal cost burden to producers via stewardship fees*
 - *Ontario – 2023 will see shift from 50% to 100%*
- Increased Resource/Input/Material Costs
- How will this impact cost savings & ROI?



Measure – Breakout: 15 Mins

- Which waste(s) are your biggest impacts?
- Environmental & Financial
- Which waste(s) are/will you focus on minimizing?
- What is your reduction goal? i.e 5%, 10% etc.
- Performance Gap? i.e # kWh, # Litres, M3 etc.
- Financial Impact? i.e Cost Savings, ROI
- Share with the group





Lean and Green
Future State: *Minimize*

FUTURE STATE



ENVIRONMENTAL IMPACT ANALYSIS

WHAT WILL BE THE NET CHANGE TO
ENVIRONMENTAL IMPACT?

HOW DOES IT AFFECT THE OTHER GREEN
WASTES?

CARBON FOOTPRINT ANALYSIS

WHAT WILL BE THE NET
CHANGE TO ATMOSPHERIC
CARBON?



LIFE CYCLE ANALYSIS



ENERGY - MINIMIZE

MANAGEMENT



CONSERVATION

TECHNOLOGY



ENERGY - QUICK WINS

- Lighting
- Air compressors
- Window film
- Insulation/leaks
- Phantom power
- Computers/IT equipment
- Peak shaving
- Turn things off!
- Energy procurement
- Water heater settings
- Programmable thermostats
- Capital procurement
- Hot water on demand
- Exit signs
- Heating/cooling “dead” spaces
- Preventative maintenance

WATER - MINIMIZE

CONSERVATION



TECHNOLOGY

WATER - QUICK WINS

- Low flow aerators/toilets
- Low flow nozzles
- Irrigation systems
- Low water landscaping
- Leaks
- Bottled vs filtered water
- Rainwater harvesting
- Behavior changes
- Sanitation procedures
- Technology

GARBAGE - MINIMIZE

ZERO WASTE PROGRAM

- Diversion plan
- Sorting
- Education
- Implementation
- Monitor and manage



GARBAGE - QUICK WINS

- Zero Waste Program
- Supplier packaging
- Waste broker
- Compactors
- Composting/vermicomposting
- Materials exchange
- Reduce pick-ups
- Zero Waste lunches/meetings
- FLW audit
- Waste audit

MATERIALS - MINIMIZE

HOW COULD YOU USE FEWER MATERIALS?



MATERIALS - QUICK WINS

- BOM vs actual
- Calibration of equipment
- Recycled vs virgin
- Re-use oils
- Materials exchange
- Sampling amounts/containers
- Reduce gauge of packaging
- Re-usable packaging
- Go paperless
- Re-design

TRANSPORTATION - MINIMIZE

MUST YOU AND YOUR PRODUCT(S) TRAVEL THAT FAR?



TRANSPORTATION - QUICK WINS

- Source and produce locally
- Use transportation demand management
- Use alternative modes of transportation
- Route Optimization
- Load Optimization
- Side Skirts/Tail Skirts
- Avoid rush orders
- Minimize packaging
- Use technology
- Telecommute
- Carpool
- Virtual Meetings
- Driver Training

EMISSIONS - MINIMIZE

“PRE-PIPE” SOLUTIONS



“POST-PIPE” SOLUTIONS



EMISSIONS - QUICK WINS

- Greener substitutes (Plant Based)
- Chemical minimization
- Scrubbers
- Indoor plants/living walls
- VOC free materials

BIODIVERSITY - MINIMIZE

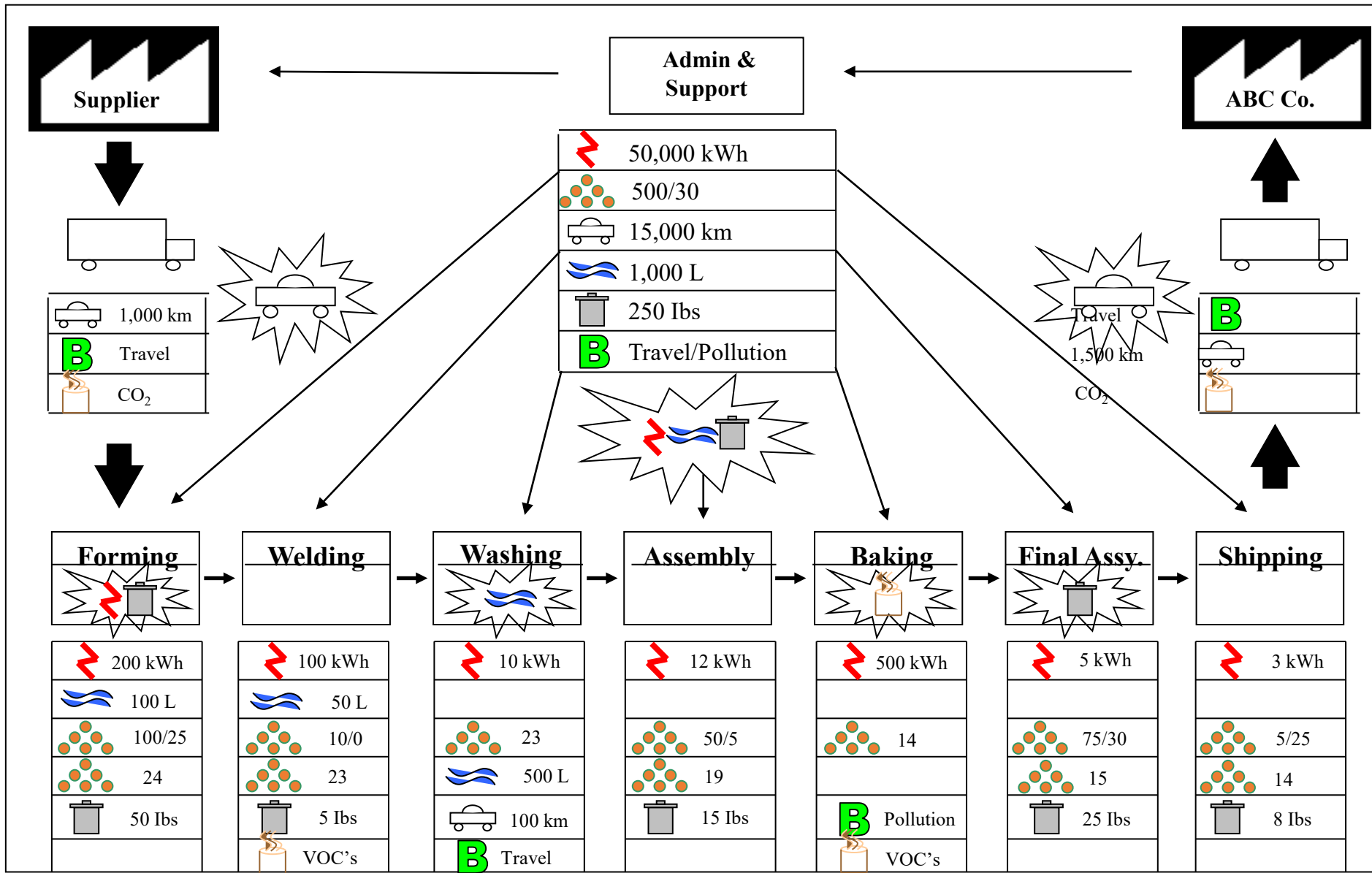
LOOK AT THE WAYS TO MINIMIZE BIODIVERSITY
DESTRUCTION...

CAN YOU BUILD ON AN OLD SITE?
OCCUPY EXISTING BUILDING?
GREEN BUILDING STANDARDS?



BIODIVERSITY - QUICK WINS

- Tree planting
- Green walls
- Native plants
- Organic landscaping
- Indoor plants
- Earth Day/Earth Hour
- Green landscaping



Minimizing Green Waste – General Approaches

- Behavior Changes
- Process Changes
- Product/Design Changes
- Technology Changes



Minimize – Breakout: 20 Mins

- What reduction approaches can you leverage? Behavior, Technology etc.
- What specific reduction opportunities can you pursue? Quick Wins?
- What have you already done?
- Collaborate/Share with your group...



Next Steps

- Start taking action immediately
- Implement 1-2 quick wins/opportunities identified today
- Start looking at your operations through a green lens – and you will start seeing the opportunities
- Create your GVS – then, work the process...
- Additional Support available
 - Various coaching/training programs
 - CME's Lean and Green SIG





THANK YOU!

QUESTIONS?

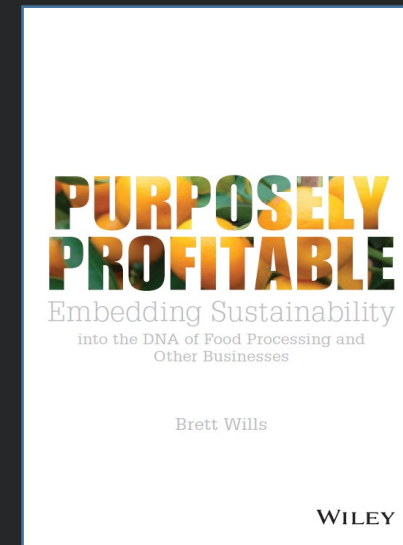
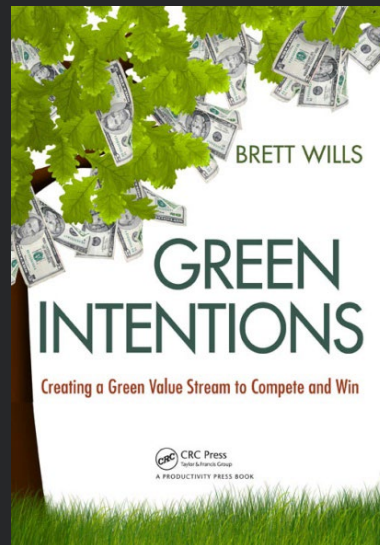
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QUESTIONS?

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