



HEMI CHANGE

Content

1

Problem

2

Solution



Expected Impact

3

HEMI CHANGE

Social and Economics

4

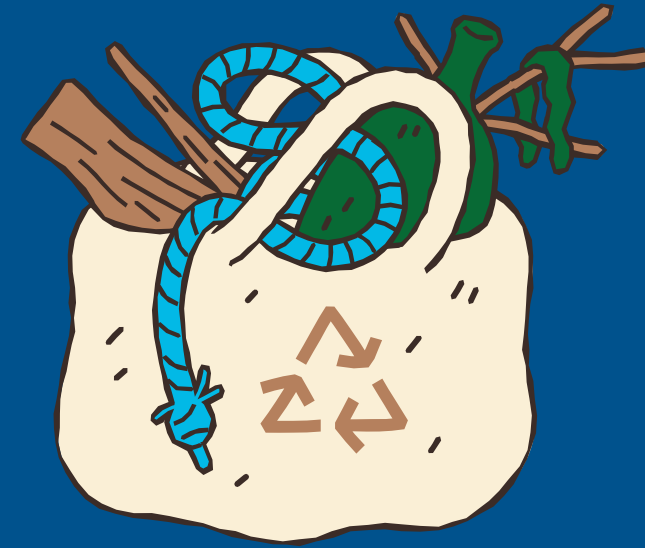


Problem

1 Problem – *General*



2 Problem – *Social & Economic*



3 Problem – *Environmental & Agricultural*



Problem – General

51 Trillion

Pieces of microplastic litter the ocean.

1.6 Million

Square kilometers is the size of the Great Pacific Garbage Patch.

1.2 Million

Pieces of plastic are used worldwide per minute.

1 Million

People die every year because of mismanaged plastic.

Plastic pollution alters habitats and natural processes, reducing ecosystems' ability to adapt to climate change, and directly affecting millions of people's livelihoods, food production capabilities, and social well-being.



Problem – Social and Economic

5.000 People

have been diagnosed
with heart disease.



90 Days

after the appointments
are made to.



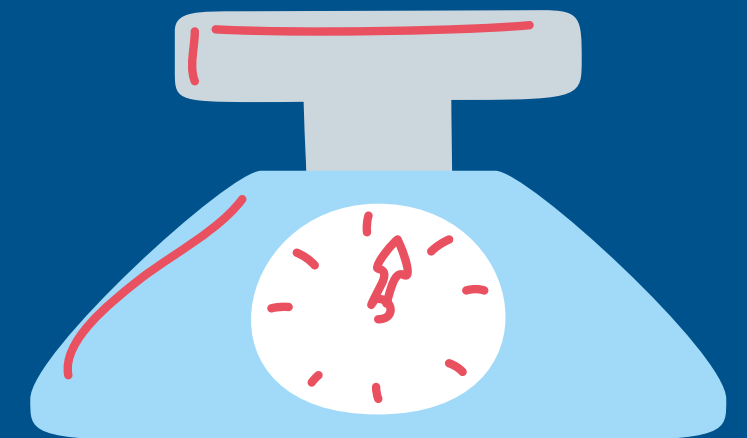
6%

of deaths are attributed
to plastic pollution.



75 Kilograms

is the average weight
of plastic usage.



Problem: Environmental and Agricultural

60-80%

Of plastics are dumped
into the dams.

97.79%

of petroleum refineries
are located in our region.

8 of 9

Cities in our region
accept plastic pollution
as a priority.

\$1.3 Billion

of profit is obtained due
to plastic production.



HEMI CHANGE



Solution

1

General Information

2

Details

3

Prototype and Feasibility

Production

4

Patent

5

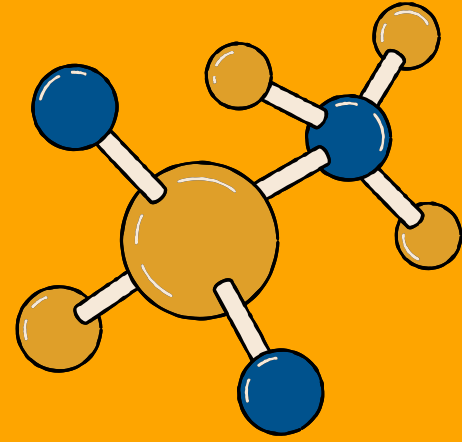
Financials

6



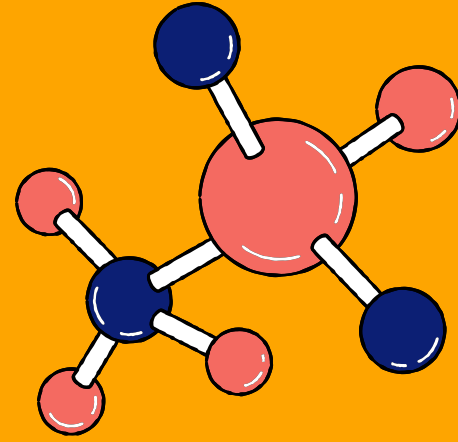
HELPING CHANGE

General Information



2% Hemicellulose

+



1% Glycerol

+



100ml Water

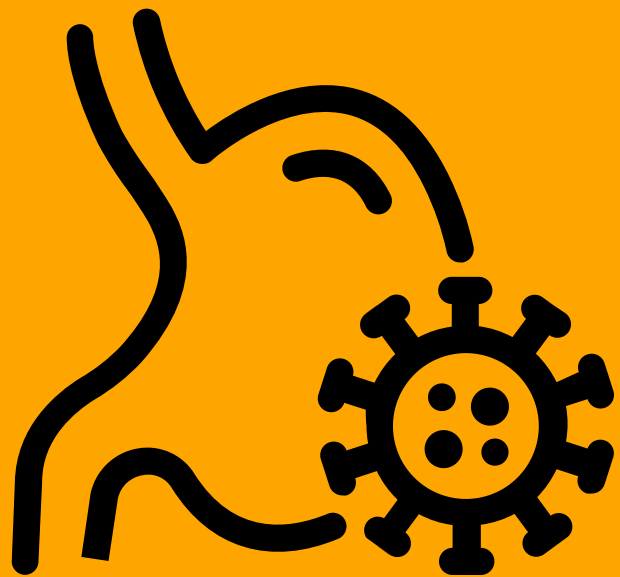
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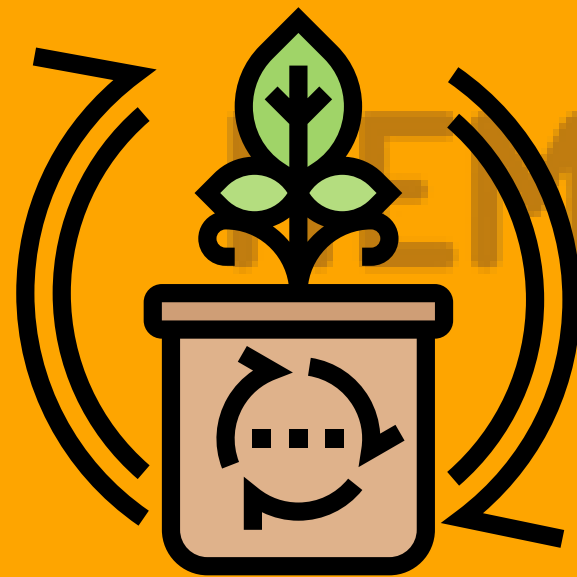
Hemi Change

Advantages

Digestible



Biodegradable



Non-Toxic

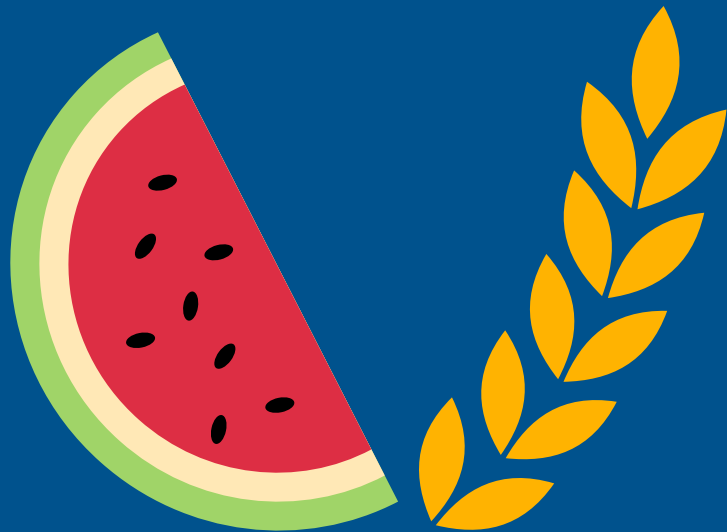


Non-Oxidizing



Hemicellulose Details

Extracted from
local agricultural
products



Flexible with low
weight and high
wearing resistance



Cheap and
suitable for mass
production



Biodegradable,
digestible, and
safe to use

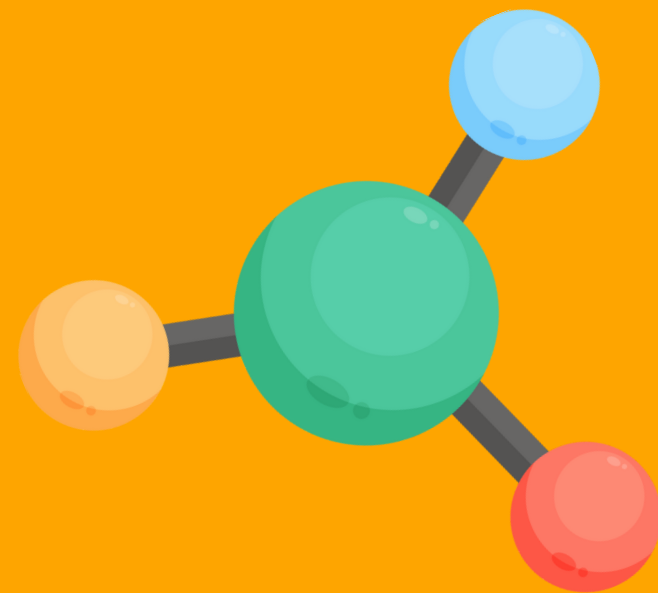


Glycerol Details

Bought from
neighboring
cities



A plasticizer with
film-making
properties



Cheap and
suitable for mass
production



Water-resistant
and non-toxic,
suitable to use



Scientific Details

Positive Outcomes

- Biodecomposes within 5-6 weeks
- High mechanical and barrier properties
- Low water permeability
- High elongation at the break
- Digestibility, non-toxicity, and non-oxidizing

Negative Outcomes

- Low physical properties
- Low tensile strength

How to Improve?

- 1st Method:
 - Increasing glycerol rate to 1.2-1.3
- 2nd Method:
 - Addition of chitosan, at a rate of 0.4-0.5

Prototype and Feasibility

Prototype



Feasibility

Low Cost



Chemical
Requirements



Raw Materials





Manufacturing Process



1

Putting materials into
separate beakers

4

Vacuum evaporation
for 15 minutes

2

Stirring the beakers

5

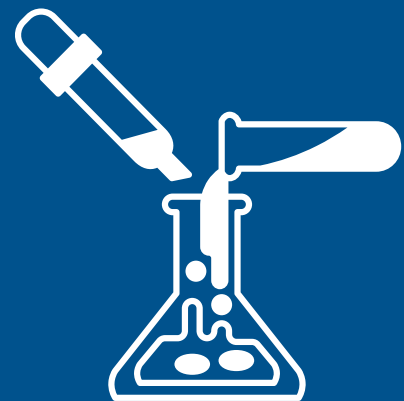
Refrigeration for
12 hours

3

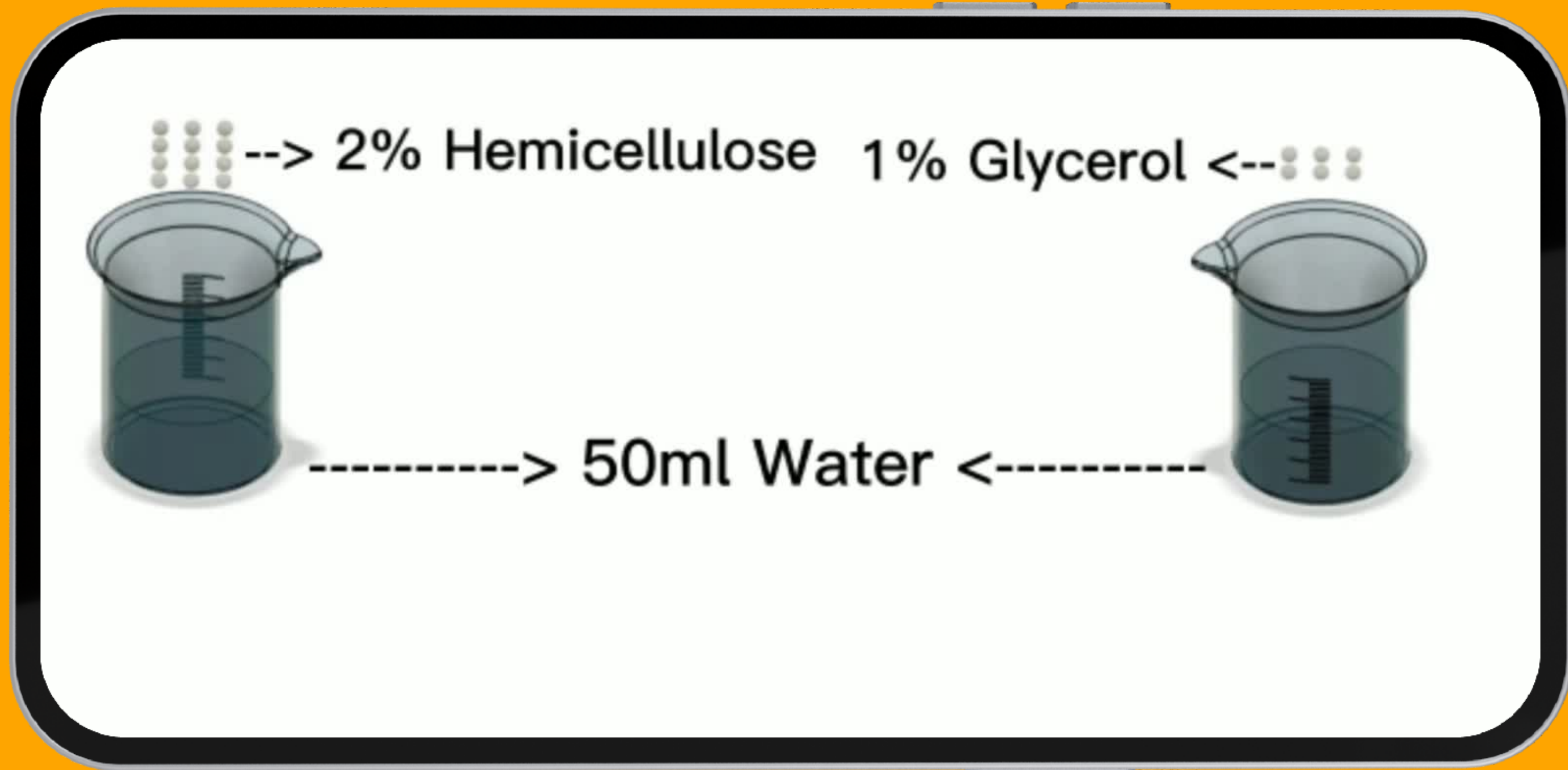
Blending the
beakers together

6

Film-making or
manufacturing



Manufacturing Process - Animation



Patent

We have applied for a patent in order to:

- Have our project approved and documented by the experts.
- To be able to present our project to investors more easily.

PATENT BAŞVURUSU

Tahakkuk No	2064851	Başvuru Numarası	2023/000963
Evrak Numarası	2023-GE-59580	Evrak Tarihi	26.01.2023 21:44:53
Erken Yayın Talebi	Evet, başvurum 18 aylık süre dolmadan yayımlansın.	Başvuru ile Birlikte Araştırma/İnceleme Talebi	Talep Etmeyorum
Tarifname Dili	Türkçe	Genetik Kaynak	Hayır
Tarifname Sayfa Sayısı	2	Kaynağın / Bilginin Coğrafi Kökeni	-
İstem Sayısı	2	Kamu Desteği	Hayır
Resim Sayfa Sayısı	-	Destek Sağlayan Kamu Kurumu	-
		Proje Numarası	-
Patent Sınıfı	-		

BULUŞ BAŞLIĞI / ÖZETİ

Buluş Başlığı	Hemi Değişim
Buluş Özeti	Günümüzde birçok maddeye göre daha kullanışlı ve ucuz olmasından dolayı kullanılan plastikler doğaya ulaşması sonucunda çevre kirliliğine sebep olmaktadır. Doğaya ve canlılara zararının olmasının yanında insanlar içinde büyük bir tehdit olan mikroplastikler insanların vücutlarına hava veya su yoluyla insanların vücuduna ulaşmaktadır. Bu sebepten mikroplastiklerden dolayı insanlarda hormonla ilişkili kanserler, kısırlık ve nörolojik bozukluklar gibi ciddi sağlık sorunları. Buluş plastiklerin ve mikroplastiklerin çevreye olan zararlarını hemiselüloz ve gliserol kullanılarak plastik üretimi sayesinde azaltmayı öngörür.

BAŞVURU SAHİPLERİ

Ad Soyad/Unvan	ADANUR NAS (Öğrenci)	Sahip Türü	Gerçek
TC Kimlik/Vergi No	[REDACTED]	Başvuru Hak Oranı	
Uyruk	TÜRKİYE	E-Posta	adanurdurunas13@gmail.com
Telefon	[REDACTED]		
Ad Soyad/Unvan	GÜL KAREN AÇA (Öğrenci)	Sahip Türü	Gerçek
TC Kimlik/Vergi No	[REDACTED]	Başvuru Hak Oranı	20
Uyruk	TÜRKİYE	E-Posta	karenacaaa@gmail.com
Telefon	[REDACTED]		
Ad Soyad/Unvan	YİĞİT BERKEHAN KÖSE (Öğrenci)	Sahip Türü	Gerçek
TC Kimlik/Vergi No	[REDACTED]	Başvuru Hak Oranı	20
Uyruk	TÜRKİYE	E-Posta	berkehankose2006@gmail.com
Telefon	[REDACTED]		
Ad Soyad/Unvan	BEDİRHAN ATABAY (Öğrenci)	Sahip Türü	Gerçek
TC Kimlik/Vergi No	[REDACTED]	Başvuru Hak Oranı	20
Uyruk	TÜRKİYE	E-Posta	bdrhn.bay15@gmail.com
Telefon	[REDACTED]		
Ad Soyad/Unvan	YİĞİT EFE NAS (Öğrenci)	Sahip Türü	Gerçek
TC Kimlik/Vergi No	[REDACTED]	Başvuru Hak Oranı	20
Uyruk	TÜRKİYE	E-Posta	nasyigitefe@gmail.com
Telefon	[REDACTED]		

BULUŞ SAHİPLERİ

Ad Soyad/Unvan	YİĞİT EFE NAS	Gizlilik Beyanı	Hayır
TC Kimlik/Vergi No	[REDACTED]	Başvuru Hakkı Beyanı	Başvuru Sahibi
Uyruk	TÜRKİYE	E-Posta	nasyigitefe@gmail.com
Telefon	[REDACTED]		

FATURA DÜZENLENECEK BAŞVURU SAHİBİ

Ad Soyad/Unvan	ADANUR NAS
Tc Kimlik/Vergi No	[REDACTED]

Cost

RETAIL

Expenses per Unit:

- Hemicellulose = \$0.01
- Glycerol = \$0.013
- Transportation = \$0.006

SALES

Price per Unit: \$0.15

WHOLESALE

Expenses per Unit:

- Hemicellulose = \$0.008
- Glycerol = \$0.010
- Transportation = \$0.004

SALES

Price per Unit: \$0.12

Finances

Expenses

Short term = **\$35.000**

Fixed:

- Labor = \$1.788
- Manufactory Rent = \$530
- Machinery = \$365
- Advertisement = \$100

Variable:

- Raw Materials' Purchases
- Transportation
- Utility = Approx \$210

Profit

- Per retail sale: \$0,121
- Per wholesale sale: \$0,105

Long-Term Goal

Working capital:

- Reaching 1.5

Economies of Scale:

- Achieving after 6 months

Strategies and Policies

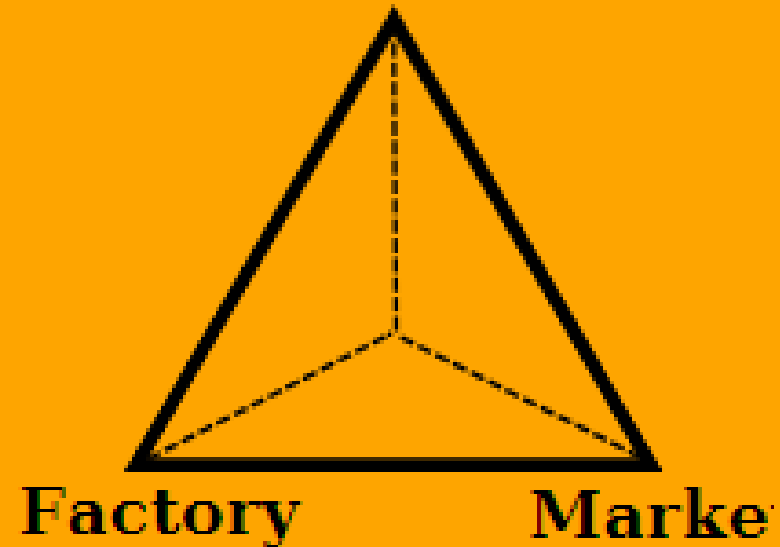
En Düşük Maliyet Teorisi

Standart

Güncel

Raw Material

Raw Material



Kurumsal-Sosyal Sorumluluk



Expected Impact

1 Impact Metrics

Environmental Impact

3

2 Social Impact

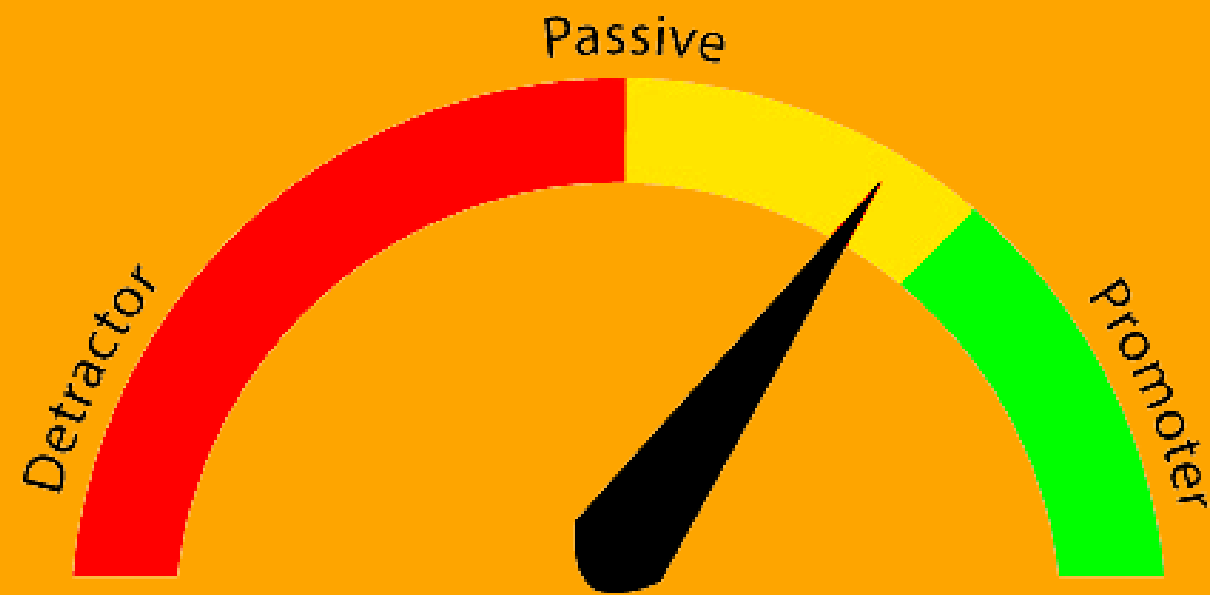
Financial Impact

4

HEMI CHANGE

Impact Metrics

Net Promoter Score



Research Metrics



Open Feedback



Social Impact



**Job opportunities
in agriculture**



**Decreasing
unemployment
rate**



**Easier access to
health care**



**Strengthening
gastronomic
tourism**



**Raising awareness
about regional and
global issues**



**Empowering
cultural festivals**



CHANGE

Environmental Impact



Utilizing local
agricultural
products



Reduced usage of
commonly used
plastics



Protecting Tigris
and Euphrates
Rivers

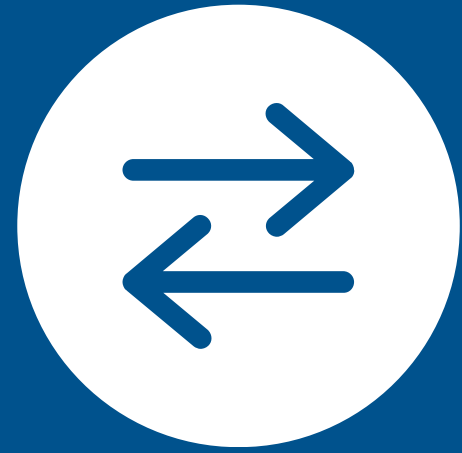


Biodegradability
and non-toxicity

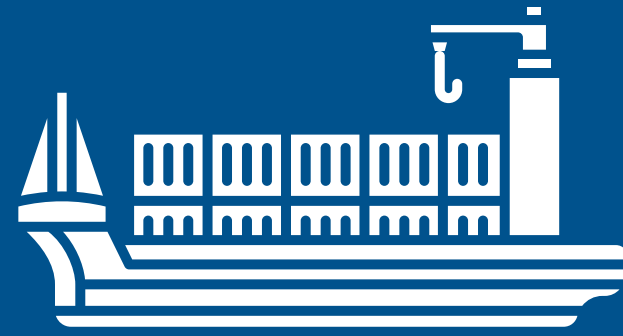
Less plastic waste
at landfills and
dams



Financial Impact



**Creating import
substitution**



**Leading
exportation**

**Turning non-basic
sectors to basic
sectors**

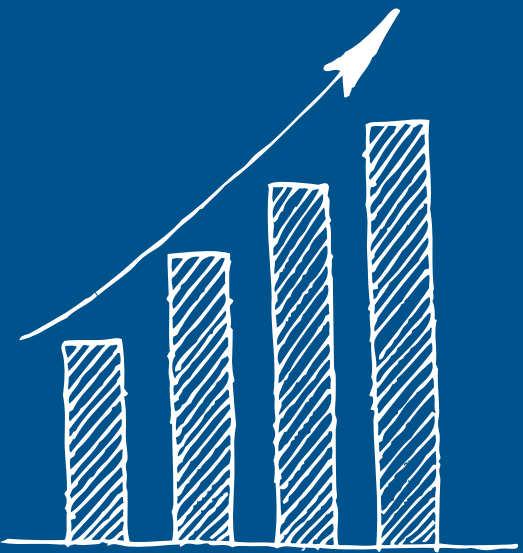


**Making Diyarbakir a
growth pole**



**Applying our model
to other regions**

**Growing the region
based on spread
effects**



Social and Economics

1

Resources

Communication Plan

5

2

Implementation

Our Work

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3

Stakeholders

Scaling Potential

7

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Stakeholders

Negative Impacts

8



Resources



Ingredient
Providers



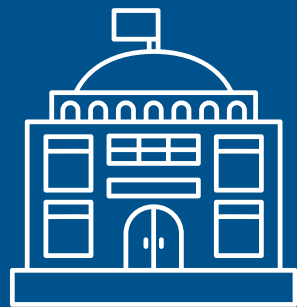
Sponsorships



Universities



Feedbacks



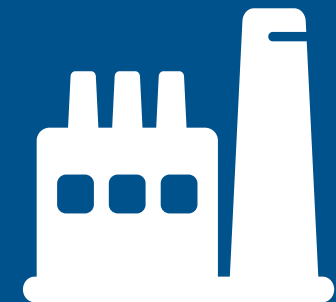
Institutional
Channels



Experts

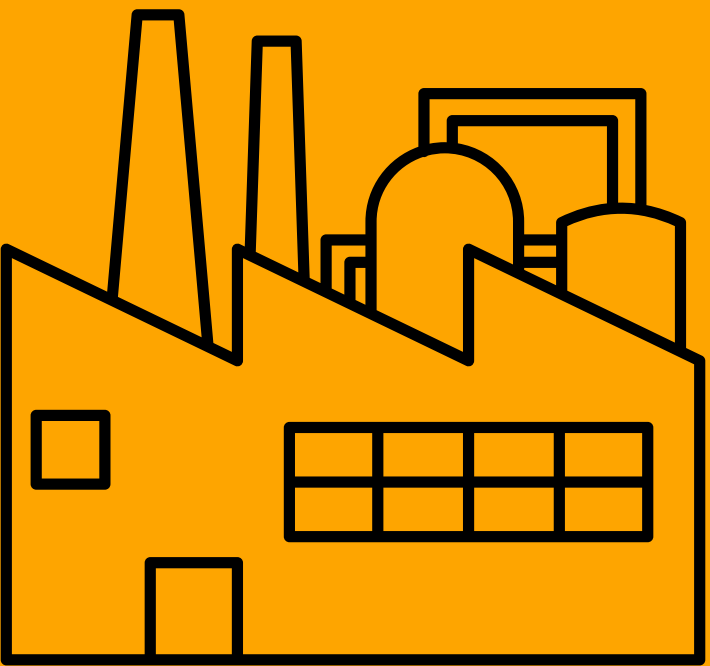


NGOs



Facilities

Implementation





Stakeholders



Partners

- Local farmers
- Turkish Environment Agency
- Diyarbakir Chamber of Agriculture
- Kordsa Turkey
- Dicle University
- Sabanci Holding
- Viveka

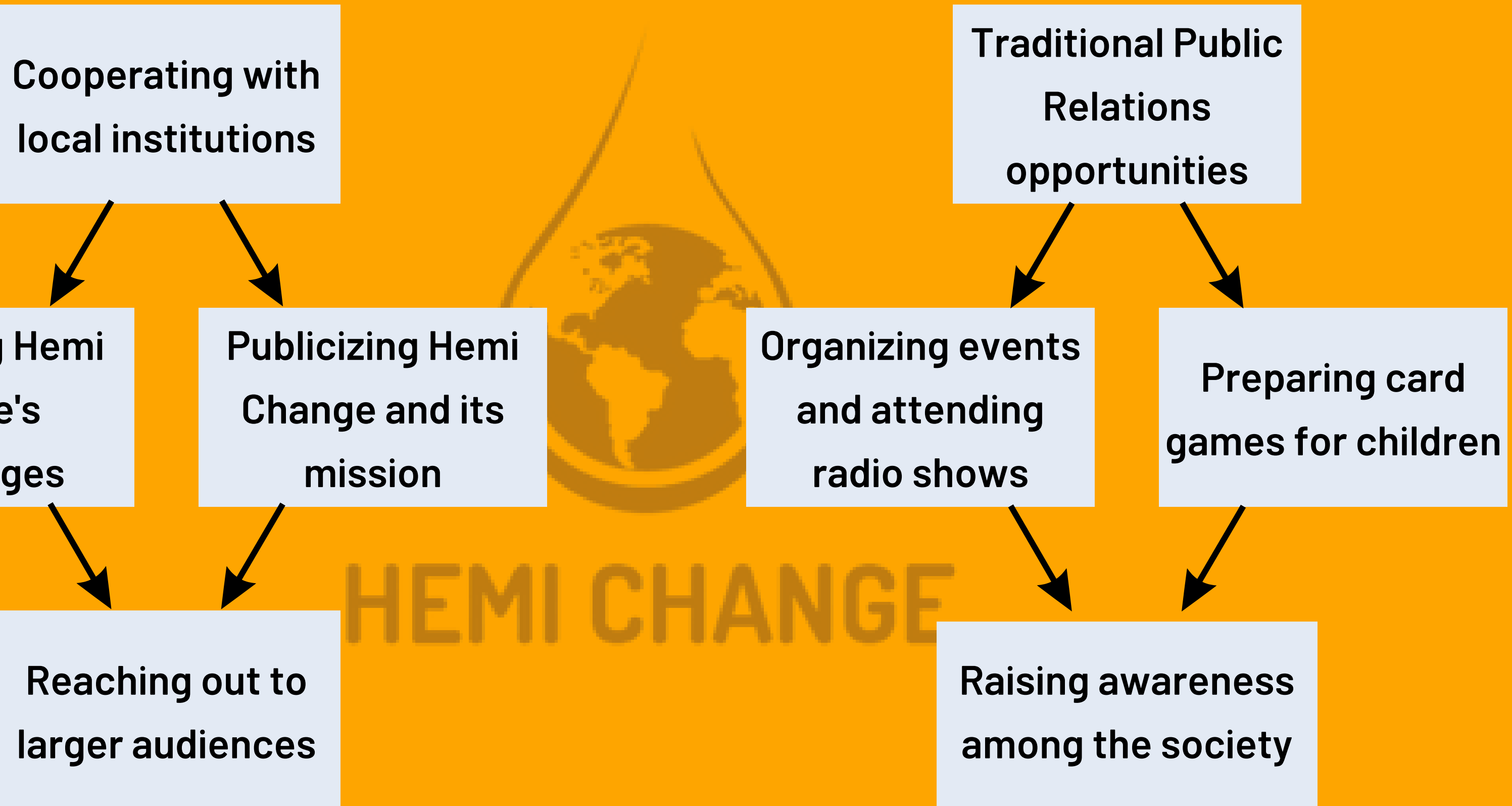
Beneficiaries

- Local farmers and community
- Victims of recent earthquakes
- Adana and Osmaniye
- 60 million people leaving around the Tigris and Euphrates Rivers

Customers

- Local community
- Partner Companies
 - Their customers
- Trendyol
 - Their 18 million customers
- Carbon-neutral and zero-waste companies

Communication Plan



Our Work



Negative Impacts on The Ocean

A

Sea-level Rise

May result in some places to be uninhabitable in future.

B

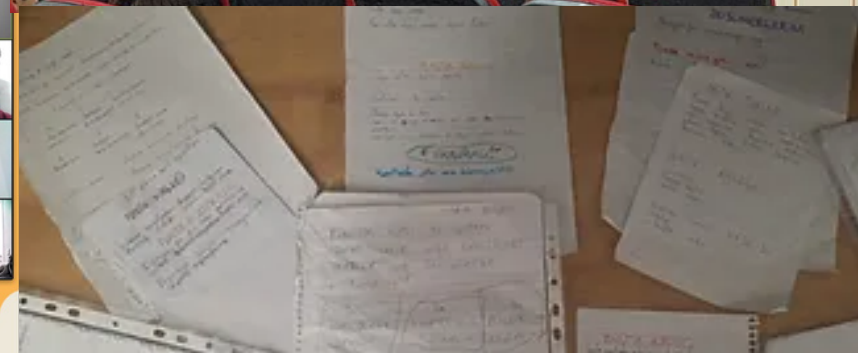
Marine Heatwaves

Sharp spikes of anomalously warm temperature that last at least 5 days.

C

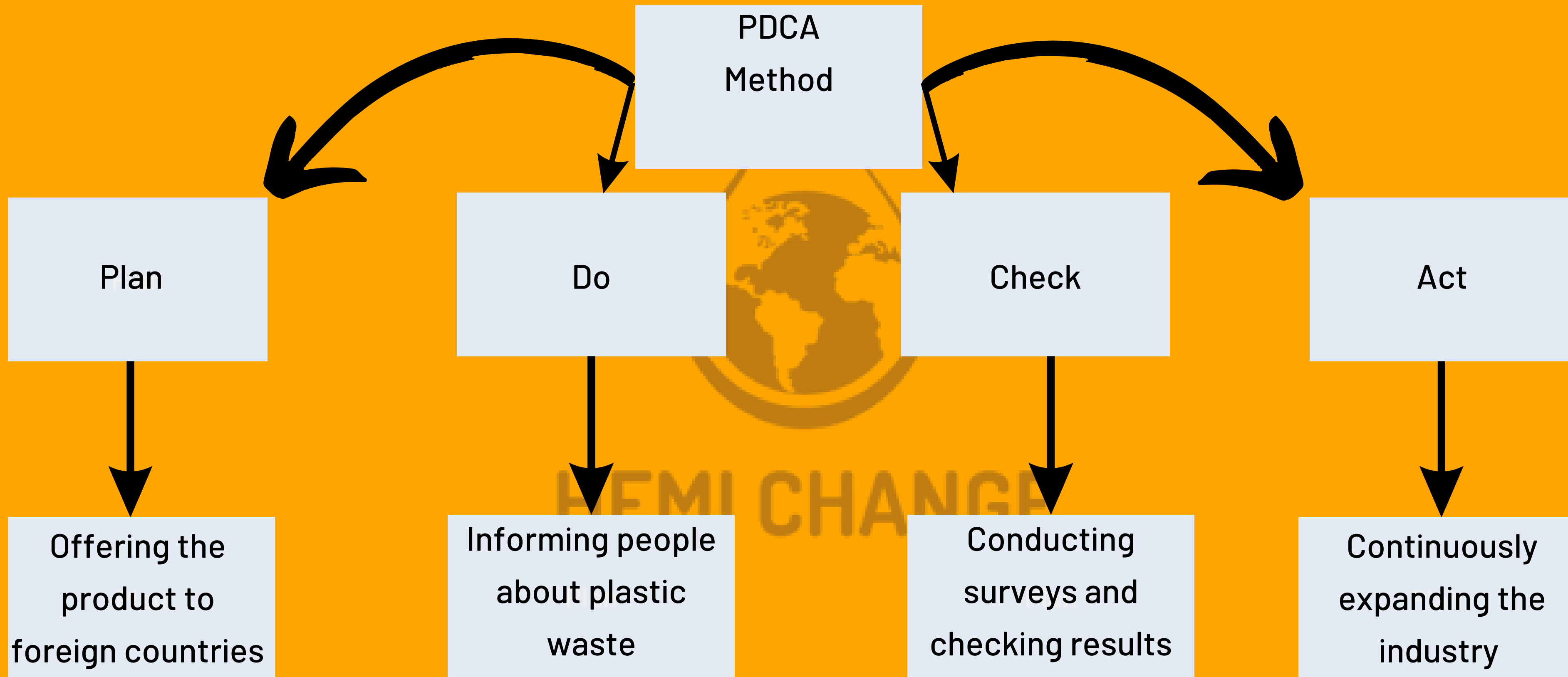
Ocean Acidification

Can alter marine food chains and food to humans.



epats[] TÜRK PATENT VE MARKA KURUMU Elektronik Başvuru Sistemi			
PATENT BAŞVURUSU			
Tahakkuk No	2004851	Başvuru Numarası	2023/000903
Evrak Numarası	2023-GE-59580	Evrak Tarihi	26.01.2023 21:44:53
Erken Yayın Talebi	Evet, başvurum 18 aylık süre dolmadan yayımlansın.	Başvuru ile Birlikte Araştırma/İnceleme Talebi	Talep Etmeyorum
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İstem Sayısı	2	Kamu Desteği	Hayır
Resim Sayfa Sayısı	-	Destek Sağlayan Kamu Kurumu	-
Patent Sınıfı	-	Proje Numarası	-

Scaling Potential



Negative Impacts

Homogenization of the market due to commercialization



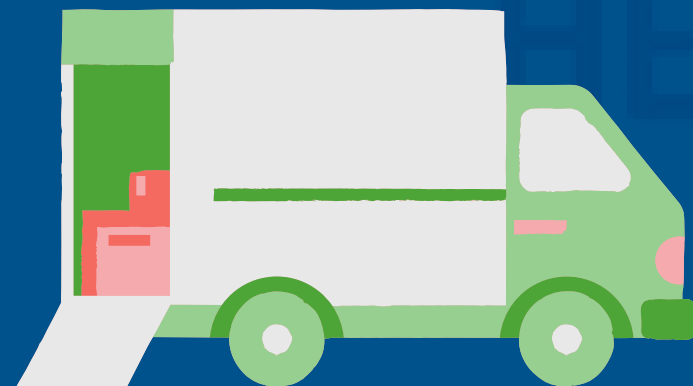
Cooperating with the Chambers of Agriculture



High oil usage in transportation



Selecting closer regions over far away ones



Unemployment of the plastic collectors



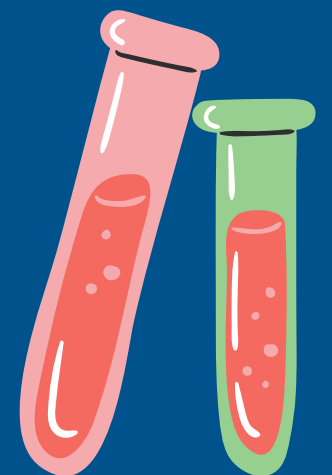
Creating new job opportunities



Lower tensile strength than the current plastic



Analyzing impacts of the other substances



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Thank you for listening!