

THE DROPSHIPPIERS

SUSTAINABLE SUPPLY
CHAIN INNOVATIONS, INC.

MICHAEL V. ALAN W. CALEB N. TANAY J.



BACKGROUND

Medication delivered to remote locations are currently transported long distances over rough terrain. Because of this, medication transported receive exposure to excessive vibration and temperatures that decrease the potency of treatments.



THE HIMALAYAS



- Remote villages near the Himalayas have limited access to medical treatment due to mountainous terrain.



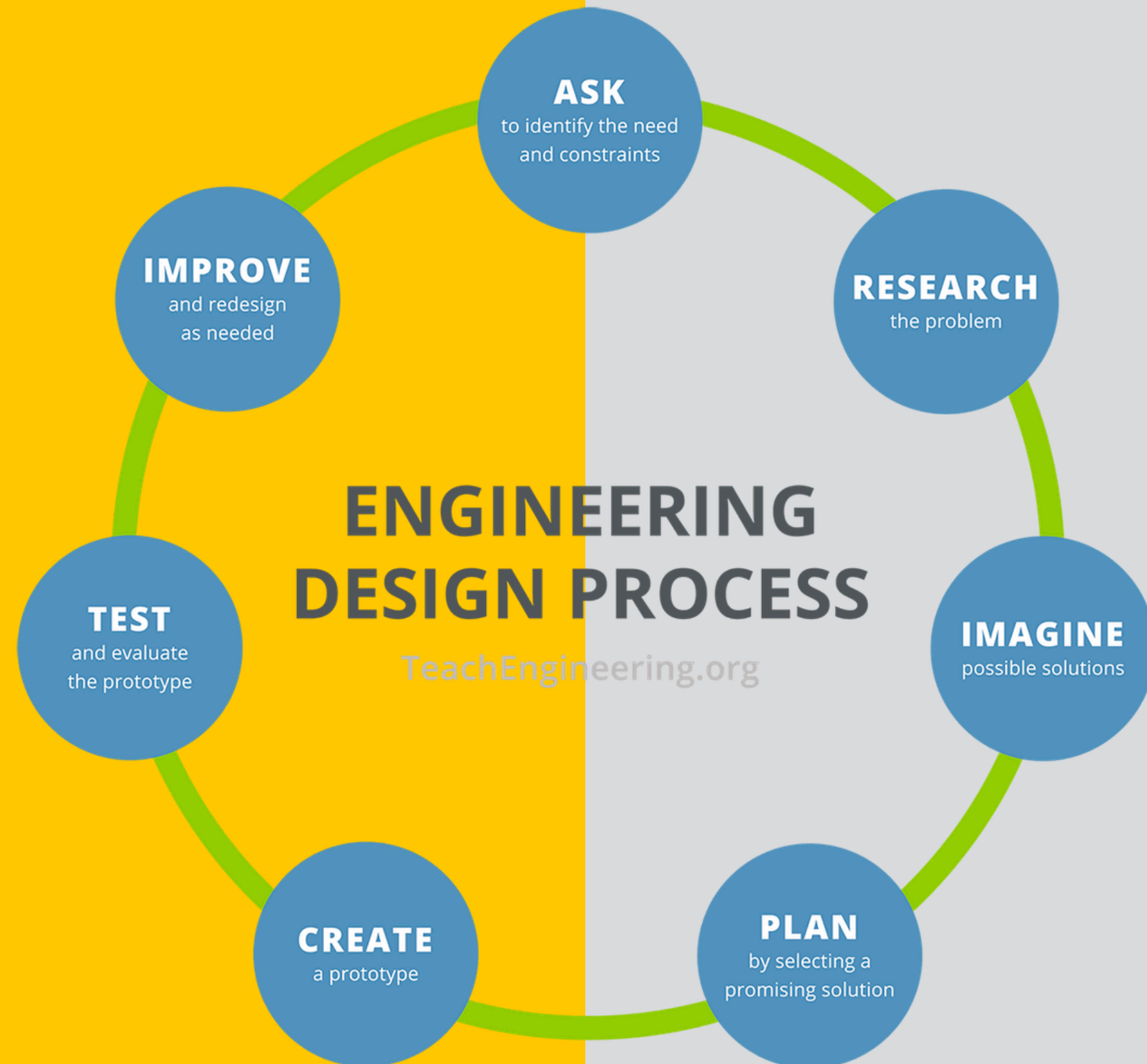
- Nepal is 9th in the world in Rheumatoid Arthritis deaths despite being 49th in population

NEED STATEMENTS

- 01** Efficiently navigate rough terrain
- 02** Vibration-Resistance and Climate Control
- 03** 12-hour delivery window; 200-mile round trip
- 04** Minimal carbon footprint and affordability



SOLUTION REQUIREMENTS



- Vibration Resistant
- Can sustain medication through rough terrain and various temperatures
- Cost effective
- Environmentally friendly
- Time efficient

POTENTIAL SOLUTIONS

Plane/Parachute



Pros:

- Efficient
- Easy to implement

Cons:

- Expensive
- Inaccurate
- Not environmentally sustainable

Slingshot Drones



Pros:

- Cost efficient
- Can be adapted from existing technology

Cons:

- Requires built infrastructure

Train Car



Pros:

- Uses existing infrastructure

Cons:

- Not feasible
- Changing shipment process

DRONE DETAILS

A slingshot will launch the drone to an appropriate altitude where it will activate its propellers and travel to the desired location

“Zipline”
DJI Mavic 3 Enterprise



FLIGHT TIME

The 2 lithium ion batteries have a collective battery life of 7 hours.



MAX SPEED

With its four propellers, the drone can handle speeds up to 60 mph.



ELEVATION

The max elevation of the drone is 4,000 meters with a payload, or 13,123 feet.

STORAGE CHAMBER

- Size: fits within the drone compartment
- Material selection: Rubber, EVA foam, and carbon fiber to prevent frequency resonance.
- Vibration dampening: Triangular structures to reduce vibrations.
- Cooling system: Maintains required temperature for the medicine.
- Secure pocket: Keeps the medicine stationary during transport.

Rubber Triangles



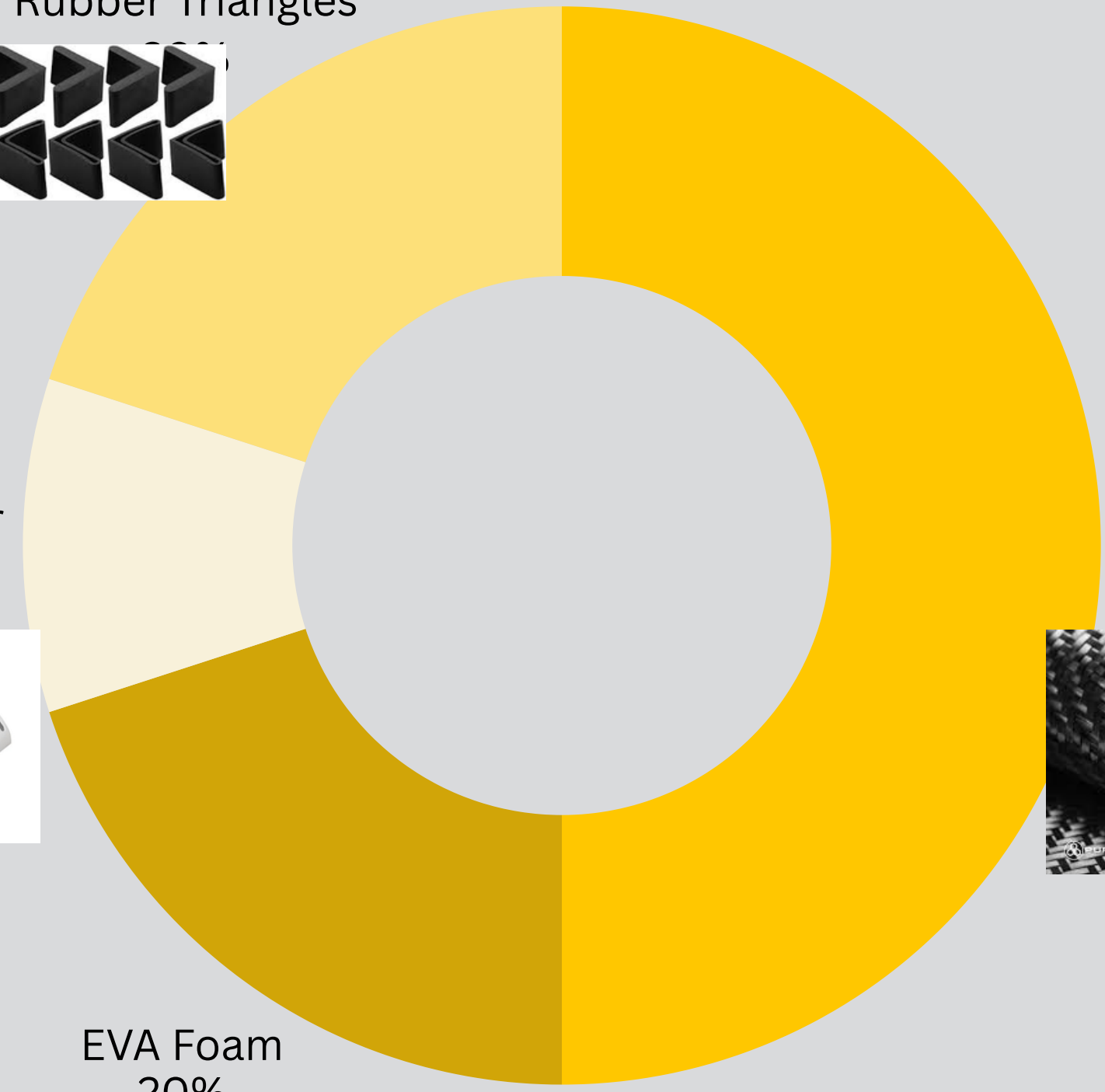
Refrigerator
10%



EVA Foam
20%



Carbon Fiber
50%



COST ESTIMATE

	Drone	Container
Materials	\$2500	\$1000
Manufacturing	\$3500	\$500
Total	\$6000	\$1500

SOURCES

- <https://www.worldlifeexpectancy.com/nepal-rheumatoid-arthritis#:~:text=According%20to%20the%20latest%20WHO,choose%20the%20full%20health%20profile.>
- <https://www.istockphoto.com/photos/aerial-view-of-kathmandu-city-nepal>
- <https://www.altitudehimalaya.com/blog/mustang-nepal>
- <https://www.amc.af.mil/News/Article-Display/Article/146169/afghanistan-surge-mobility-airdrops-quickly-bring-material-wherever-needed>
- <https://www.wired.com/2015/06/smart-car-train-tracks-wont-fix-transit-woes/>
- <https://www.teachengineering.org/populartopics/designprocess>
- <https://www.shutterstock.com/video/search/himalayas-village>
- <https://www.istockphoto.com/illustrations/eco-friendly-logo>
- <https://hiketrichities.com/2017/08/21/mt-adams-climb-pictures/rough-terrain-on-morrison-creek-drainage-on-mt-adams/>

THANK YOU