WELCOME

The Tech for Global Good Design Challenge

ORANGUTANS

The Tech for Global Good
**Introduction**

Terms to know:

**The Tech for Global Good**

The Tech for Global Good is an initiative that will create the next generation of innovators ready to tackle the toughest challenges facing our planet.

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**Smart Parks**

Smart Parks combines conservation with innovation and technology to protect some of the world’s most threatened animal populations.

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**Innovation Design Process**
**Design Challenge**

You and your team run an animal conservation foundation based out of San Jose that develops innovative technology and policy plans to help save endangered and threatened animals. Your team will use your skills as communicators, researchers, collaborators and creative problem-solvers to assist governments and communities in developing plans to help create more sustainable environments for animals and humans.

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1. **Research the problem:**
   - Understand the design challenge.
   - Read the background material.

2. **Brainstorming:**
   - Write each idea (text/image/both) on a sticky note and put it on the whiteboard.
   - Be creative! Think of as many wild ideas as possible.
   - Develop questions and search out answers.

3. **Create a solution:**
   - Each member shares their sticky notes and posts them on the board.
   - Group together similar ideas.
   - Choose a few ideas to focus on or combine into your team’s solution.

4. **Refine your solution:**
   - Get feedback from peers on your solution.
   - Edit your solution and improve how it addresses the problems your team is focusing on.

5. **Design a project and presentation:**
   - Get feedback on your solution from others.
   - Please show:
     - The specific problem your team is going to address.
     - Your team’s solution for this problem.
     - Story of how someone is impacted by your work.

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What do you already know about orangutans (*or-rang-a-tang)*?

Draw or write about your ideas (complete sentences are not necessary).
Designing a Solution for Orangutans, in Sebangau (See-ban-gow) National Park (Borneo, Indonesia: Kalimantan)

The Indonesian Ministry of Forestry wants to become a model for ecological sustainability and animal conservation. They have asked you to join their team in making the next advancement in protecting orangutans (or-ang-a-tangs) in Sebangau National Park. Sebangau National Park is a 568,700 hectare (or about 2,200 square mile) forest established in 2004 after over 85% of the forest had been destroyed from legal and illegal logging. The logging has greatly reduced the habitat for the orangutans in this park and illegal logging continues to threaten territory for this critically endangered animal.

On the following pages you will receive more information about the challenges of protecting orangutans around the globe. Think about the different issues presented to help inspire your solution. As a company it is okay to design solutions where you collaborate with other organizations and governments, and where you can create new or innovate on current technologies. What will you do to create a change in Borneo that will ripple out into the world?

Changing Tropical Rainforests

Rainforests cover about 6% of the Earth and house half of the animal and plant species. These rainforests act as lungs for the planet taking in carbon dioxide and releasing oxygen. Over time the rainforests have begun to shrink as humans take the trees to make products, expand cities and to use the land to grow crops.

Sebangau National Park was formed in 2004 to protect the peat swamp forest. From 1980 to 1995 multiple logging companies greatly reduced the size and health of the rainforest because they cut down trees, drained the swamps and burned the peat. Then in 1996 part of the swamp was drained to try to create rice fields. This plan did not work and the forest was reduced further. In 2004, 85% of the park was deforested and in the last 14 years 1% has been reforested. Now the the land and trees in the park are protected, farmers and plantations have set up along its border to grow palm oil trees. These trees, that take about four years to produce fruit and last about 30 years, boost the economy. They also mean that humans and rainforest animals live very close together.
Protecting Orangutans

A key component in maintaining Sebangau National Park’s health is to protect orangutans. They play the role of “gardeners” by dispersing seeds that help the forest grow and thrive. Currently, it is believed that 6,000 orangutans live in the Sebangau National Park. In 2016 it was estimated that there are 100,000 orangutans in the wild, down from 280,000 in the 1970s. As the numbers continue to decrease several threats to the health of wild orangutans have been identified:

- Deforestation of the rainforests for farmland, timber and palm oil plantations.
- Orangutans are slow to reproduce. An adult female orangutan usually has one baby at a time and reproduces once every two to three years.
- Interactions with humans. As orangutans lose territory they have less food to eat and sometimes take crops from farms on the edge of the forest. Villagers will sometimes kill orangutans to protect their crops.

Indonesia is working on finding a balance between the businesses of logging, mining and farming, along with protecting the forests by limiting these businesses and creating national parks. In 2009, Indonesia created the Timber Legality Assurance System to increase legal logging. However, enforcement and punishment for breaking the logging laws are inconsistent. Furthermore, it is illegal to take, kill or sell orangutans though no one has been prosecuted in Indonesia for doing these things. So there are policies to protect the forests and wildlife, but there isn’t much being done to enforce them.

- Illegal wildlife trade. Some estimate that a baby orangutan can be sold illegally for up to $45,000.
### Perspectives on the Issue

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<td><strong>Farmer</strong></td>
<td>• Mapping technology to identify where small farms are located, then Non-governmental Organizations (NGO), like INOBU, can work with farmers to support them in developing sustainable farming practices. • Sensors can be used in the soil to collect data like pH and moisture.</td>
<td>• <strong>The Borneo Project</strong> Connects international interests with community-led solutions to protect forests, livelihoods and human rights.</td>
<td>• Some farmers see the possibility to work with palm oil corporations as an opportunity to take care of their families.</td>
<td>• <strong>World Wildlife Fund</strong> Helping orangutans by working with governments, institutions and communities to conserve forests, change logging methods and reduce human-orangutan conflicts. • <strong>World Resources Institute</strong> Through their research believe independent farmers, if supported in a systemic way, are the solution in maintaining sustainable farming practices and protecting the forests.</td>
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| Grocery Store Owner | • Apps with scanners that tell user whether palm oil used in product is sustainably sourced. • Online research for different organizations that might want to help: • Sustainable Palm Oil shopping • **Palm Smart** gives a grade to how sustainable the palm oil source is. | • **World Wildlife Fund** Helps consumers spot and stop purchasing products that have palm oil by sharing ingredient names and providing education on reading labels. • **Iceland Foods** A supermarket in the United Kingdom has stopped carrying products that have palm oil. • **Kroger Grocery** puts out a yearly sustainability report. | • **Say No to Palm Oil** This advocacy website works to educate the public about the environmental and social impacts of unsustainable palm oil production. According to an article in the Smithsonian Museum Magazine, giving up palm oil is a bad idea because it produces more oil per acre than other sources. • Twitter: #BoycottPalmOil. | • **Center for Climate Risk and Opportunity Management** Bogor International University 2012 Report looked at the government’s need to provide land to palm oil companies and how to protect the forests from deforestation • **Roundtable on Sustainable Palm Oil** Certifies farming producers and manufacturers as using sustainable farming practices of palm oil. This organization works with larger plantation-sized farms which have questionable track records in respecting the civil rights of smaller farmers and indigenous peoples, also it is often too expensive for small farmers making it impossible to participate in the program. |

**Farmer**

I live on the edge of a palm oil corporation and I have a little land to grow food for my family. Sometimes orangutans come out of the forest and steal my family’s food. The orangutans are pests that steal food and make it hard to get lumber in the forest. We’ve heard people far away care about these thieves, but what do they think about us trying to take care of our families? The palm oil trees I plant can last up to 30 years producing a product used in food and goods all over the world. My work helps the world.

**Grocery Store Owner**

I’ve heard about the impact of non-sustainable palm oil and the continued deforestation in South-East Asia. I know that forests are important for our planet so I’m considering a shift in purchasing for the store. However, it seems like it is hard to figure out if palm oil is in a product and how it is sourced. Is this amount of work really necessary and will it make a difference to my customers?
### Director of Pingtung Rescue Center in Taiwan

**I run a rescue center for smuggled pets that can no longer be cared for. We are starting to operate it as a zoo with a limited number of guests to show the public the cost of exotic pet smuggling. Currently there are 850 animals representing 106 species and the zoo allows 9,000 visitors a year. The number is low to keep the animals calm. We are doing our best to care for all of these animals and to show people that this is not a good choice, but how much of a difference can our one rescue center make?**

- **TRAFFIC - Wildlife Trade Monitoring Network**
  Non-governmental organization that focuses on illegal animal trafficking.
- **Sumatran Orangutan Conservation Program**
  Rescues, quarantines and reintroduces orangutans that have been pets.
- **Orangutan Appeal UK**
  Orangutan rescue, care and rehabilitation services.
- **Orangutan Foundation International**
  Orangutan care center, rehabilitation and forest conservation.

### Climatologist

**I study the role of peat swamp rainforests in global ecology. The peat clearly helps capture carbon, which is necessary to clean our atmosphere. We have conducted a number of research projects that clearly demonstrate the need for these forests, but people don’t seem to understand. What can I do as a scientist to inspire governments and people to make different choices?**

- **Rainforest Connection**
  Uses recycled cell phones as acoustic monitors to check for illegal logging.
- **Climate Adaptation Knowledge Exchange (CAKE)**
  Source for climate adaptation case studies and resources.
- **American Meteorological Society**
  Source for data on weather, water and climate.

### Organizations

- **Convention on International Trade in Endangered Species (CITES)**
  Agreement between international governments about stopping trade in endangered species to protect the survival of plants and animals. This organization began in 1973 and currently lists protections for 35,000 species.
- **Movies like “Finding Nemo,” “Free Willy” and “Rio” aimed to point out the problems of the illegal pet trade seem to raise interest in owning macaws and clown fish or attending large aquatic parks.**

### Technology

- **Uses sensors and drones to protect the parameter of forests to aid game wardens in protecting endangered animals.**
- **Apps for Apes**
  developed by the Smithsonian’s National Zoo provide enrichment to orangutans to keep them active and engaged.
- **Milwaukee County Zoo**
  is iterating to make iPads more orangutan safe, so they can use them to chat with other orangutans around the world.

### Opinions

- **When Debate.org asked if people should be allowed to keep exotic animals the respondents were divided 50/50. People for it think there are humane ways to care for exotic animals. Those against were concerned with safety for humans and animals.**
- **Breakfast with Orangutans**
  a zoo experience has lots of positive online reviews for interacting with orangutans.
- **Twitter: @redapes, @OrangutanTOP**

### International Approaches

- **When according to an article in the Public Library of Science, 65% of villagers in Borneo are against large scale deforestation.**
- **Climatologists believe protecting the rainforests in all areas, including Borneo, is essential to reducing the wide-scale effects of climate change.**
- **Farmers and plantation owners who want to create more fields quickly and cheaply want to clear cut or burn the forests.**
- **People who want or need inexpensive products that use palm oil or wood may support deforestation or may be unaware of how price relates to deforestation.**
- **Twitter: #deforestation, #climatechange**

- **United Nations/Climate Change**
  Organization through the United Nations to help governments coordinate efforts together.
  **Twitter: @UNFCCC.**
From Your Reading

Below are some questions to help you process what you read

• What are some problems that affect orangutan populations?

• What questions do you have based on your reading?
Brainstorm Notes

Problem

• Why is this a problem?
• What other problems does it remind you of?
• Often larger problems need to be broken down into smaller pieces. What part(s) of this problem does your team want to address?
Solution

• How could you combine these ideas to create a new solution?
• What ideas do you have that are nothing like what you have researched? (Wild ideas are welcome!)
• Who will help your team solve this problem? Which organizations, governments, etc.?
• How do these ideas help solve the problem?
• What is needed to implement or enforce your solution?

Impact

Pick one of the following identities:
• Rainforest tour guide
• Snack food manufacturer
• High school student

Based on one of the above identities think about how they will be impacted by your team’s solution to this problem.
• How will this person’s life change because of your solution?
• What would they think or say about your solution?
• How will this change impact someone with a similar identity that lives 2,000 miles away?
Listen and Help

STEP 1
Team A presents their design solution.  
- Team B cannot speak.  
- Team B can take notes.

Team B writes questions.  
- Quiet minute for thinking.

Team B asks clarifying questions.  
- Team A can answer.  
- Team A can take notes.

Team B provides feedback.  
- Team A should take notes.

STEP 2
Team B presents their design solution.  
- Team A cannot speak.  
- Team A can take notes.

Team A writes questions.  
- Quiet minute of thinking.

Team A asks clarifying questions.  
- Team B can answer.  
- Team B can take notes.

Team A provides feedback.  
- Team B should take notes.

Sharing Our Solution

Our solution
- The problem as we see it is:

- Our solution is to:

- We plan to tell a story about how our solution helped this person:

Requesting/Focusing Feedback
- Was the part about ____________________________ is easy for you to understand?
• We want feedback on specifically does it?

• What is your favorite part of our solution?

• What is part of our solution that you think needs work?

**Giving Feedback to Other Team**

• What problem are you solving? Is it:

• Who will benefit from this solution?

• Can you explain how will help solve this problem?

• A question I have about your design solution is:

• One thing I like about your solution is:

• I think it is important that you include:

• I wonder what would happen if:

• I heard you say:
Design a Project and Presentation!

Pick a project:
• Business plan
• Advertising campaign
• Demo of potential device
• Slideshow
• Infographic

Project and presentation:
• Describe a focused problem
• Explain a solution to this problem
• Show how your solution will impact one person (rainforest tour guide, snack food manufacturer or high school student)

Notes