Conceptual Skeleton Framework

(sections → this is the economic, social, political problem, achieving goal)

Overarching Goal

A plan drafted that accommodates the Brazilian soybean farmers by using vertical farming to support their livelihoods and survival → protecting the indigenous territories from more dam construction. → Essentially: how vertical farming could be implemented to support Brazil's economy and save the indigenous lands.

Economic

Brazil (possible investment —would an investment be possible or external.

- Brazil government wants to open up a dam for investment with China, one of the largest consumers of Brazillian agriculture products.
- Brazil-China Cooperation Fund for the Expansion of Productive Capacity-worth 20 billion USD
- Influenced by Atlantic port distributors over soybean production
- Brazil's current economic situation isn't great as the country is riddled with poverty, especially in the North
- Dam construction however is their major investment

Political

(Governmental situation individually + Amazonia)

- Constitutional republic President Bolsanaro is against environmental restrain
- Legal code in favor of rural farmers
- Supreme court redefined the New Forest Code Environmental agencies
- 2.2 billion dollars of fines will not be collected by the gov over issues in Amazon.
- Government claims that they will restore illegally cut land-no plan currently in place

Social

(Overall)

- Farmers feel they have property rights to the Tapajos land
- Fear of outsiders from local populations
- Many scientists do not have cultural competency to communicate findings with locals
- Jair Bolsonaro holds anti-native views and refuses to protect their land from outside destruction
- Some locals are in favor of the economics gains that the creation of a dam provides

Indigenous Sitiuation

(Munduruku People)

- Dams are responsible for flooding indigenous territories and displacing over 200,000 people in hopes of opening trade access for soybeans in the Atlantic Ocean→ purposed for Brazil's agribusiness interests +exports
- 5 indigenous groups along the Xingu river→ 3 of which will be directly impacted (first) by the hydroelectric dam project (Mundurukus)
- Munduruku groups are angered by the construction as they have been fighting for land demarcation
- Groups are threatened by poverty and famine as the dams destroy the basin and top soil that supply their people with food

<table>
<tr><th colspan="4">Environment
(Dams, Viability of farm)</th></tr>
<tr><th colspan="2">Belo Monte:</th><th colspan="2">Teles Pires:</th></tr>
<tr><td>Location:
BR-230, s/n - Km 52, Vitória do Xingu - PA, 68383-000, Brazil</td><td>Extra Information:
-6 billion dollar megadam</td><td>Location:
330km upstream Tapajos Valley, 53- megawatts.</td><td><u>Extra Information:</u>
Awarded green certificate for "sustainability" → resulted in numerous environmental crises</td></tr>
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→ Blocked 1,000 miles of the Xingu river.	-Altamira (city downstream dam) is urbanizing.		+ displaced indigenous people.
General Plan: To construct over 40 large hydro-electric dams to facilitate soybean production and trade into the atlantic ocean. In general, open up trade in the Atlantic and grow their agribusiness.			

Habitat

(Land, region type, water, sources of energy)

- The Tapajos-Xingu Moist forests are important because they contain a large ecosystem of rainforest plants and animals that contribute to Brazil's ecology and economy. This region contains many basins and watersheds that in recent years have been targeted by loggers and Brazil's own federal government for the purposes of deforestation and damming.

What lives there are essential?	Animal, plant and human lives are at risk from the deforestation of this region of the Amazon. Humans have suffered conflict over land usage disputes due to the lack of government enforcement of property rights in Brazil. The Tapajos-Xingu forest contains unmatched plant ecosystems that do not occur anywhere else in the world. Animals are also essential to this region since they contribute to the biodiversity of Brazil and could contribute to human medicines in the future. → This region contains 161 species of mammals and 556 species of birds. Some examples of native wildlife include the American Manatee, toucans, and the tiny titi monkey. The region also contains many important species of trees and high density linas, with families from the Bignoniaceae in the forest.
What would be lost if it was changed?	If the deforestation of the Tapajos-Xingu continues the region will continue its transition to Savanna. The ecological integrity of the region would decline due to mining for valuable minerals and deforestation for agriculture. Large fires could pose a threat to human lives and create poor air quality for residents. The number of species that would be lost, animals and plants, to the further decline of this forest is incalculable.

The actual size of it?	The size of the forest is 336,698.45 square kilometres and contains the 4th largest tributary basin in the Amazon.