



KHON SAN DISTRICT

CHAIYAPHUM PROVINCE, THAILAND

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INTRODUCTION

Khon San district is located in Chaiyaphum province in northeastern Thailand. Home to over 60,000 villagers, it is approximately 967 square kilometers and consists of 8 sub-districts and 85 villages. The main occupation of villagers is farming, at 80 percent, with para rubber farming making up only 10 percent of the overall occupations. Despite its small percentage, para rubber farming is receiving immense attention due to the controversial construction of a rubber factory.

The construction of the rubber factory will jeopardize the livelihood of six sub-districts. The effects will range from the contamination of water, to the disruption of farming and severe changes in biodiversity. Smells from the rubber factory will also have an impact on individuals occupying government office buildings and schools within the 10-kilometer radius. The contamination will be devastating due to the citizens' heavy dependence on the area's natural resources, such as forests and underground water sources. These water sources include rivers and geysers.

Most recently, Khon San villagers will file a lawsuit at the Administrative Court against the Tambon Administrative Office (TAO), which approved the permit for the construction of the rubber factory. As the fight against the rubber factory continues, it is important to understand the current ecology of Khon San and which resources are at risk of depletion. This ecology report gives insight into Khon San's community history and discusses the biodiversity of the district through a series of human perspectives and surveys of the area.



COMMUNITY HISTORY

Yan Toopetch, an 82-year-old elder of Khon San, elaborated on the history of the community. Yan explained that originally it was difficult for outsiders to enter the district. The forests and



mountains served as a blockade of the area, while disease and illness made it difficult for outsiders to integrate themselves into the community. Additionally, natural resources such as limestone mountain areas, caves, and underground water sources were abundant.

Farming practices have transformed since Khon San was established. Villagers have moved away from rice farming towards the production of sugarcane, due to high potential profits. This corresponds with the country's notion that sugar was one of the most promising industries and the rapid increase of production during the 1980s and 1990s, moving Thailand into position as one of the top sugar exporters in the world. Regardless, farmers with frequent access to water sources still grow rice more than once a year.

The district of Khon San has four main natural spring sources: Nam Phut Thap Laos, Nam Phut Na Wong Duan, Nam Phut Hin Lat, and Nam Phut Na Lao. These are 7 km, 1.8 km, 4 km, and 4 km away from the rubber factory, respectively. All of these natural spring waters run year round and are used for agricultural purposes. These water sources were also used for villagers' drinking water, but they now rely on a separate water supply.

The entry of outsiders and increase in population has sparked development projects in the community, which have impacted the land and farming practices. For instance, coconut, mango and banana trees are cut down to make room for additional infrastructures. Homes are expanded to make room for growing families, and more government buildings have been built. The number of infrastructures grows while the land available for construction lessens.

AFFECTED PARTIES WITHIN 5K RADIUS

COMMUNITIES

- Nam Phu Pangwua Village
- Nap Rong Village
- Khon San Sub-district
- Sum Chompu Village
- Sum Phuthong Village
- Thung Nalao Sub-district
- Non Puem village
- Tai Thung village
- Don Udom village
- Doa Dae village
- Non Champa village
- Huay Yang village
- Muang Village
- Na Bua village
- Fai Din Saw village
- Dong Bang Nua village
- Dong Bang Tai village
- Non Wan Prai village
- Sai Sa-aat
- Dong Bang Sub-district

SCHOOLS

- Khon San Technology School
- Nawong Duen School
- Pang Namphu School
- Fai Din Saw School
- Ban Muang School
- Na Bua School
- Dong Bang School
- Khon San School
- Anuban Supamon School
- Anuban Nattapan School
- Non Puem School
- Don Udom School
- Huay Yang School
- Non Huana School
- Kon San Wittayakom School
- Nakoh School
- Nam Phu Hin Lad School

GOVERNMENTAL OFFICES

- Khon San Farmer Cooperative
- Khon San District Office
- Khon San Olice Station
- Huay Yang Police Station
- Khon San District Hospital
- Huay Yang Sub-district Health Promotion Hospital
- Dong Bang Sub-district Health Promotion Hospital
- Thung Na Lao Sub-district Health Promotion Hospital

LOCAL GOVERNMENT / ORGANIZATIONS

- Khon San Sub-district Administrative Organization
- Khon San Municipality Office
- Dong Bang Sub-district Administrative Organization
- Thung Na Lao Sub-district Administrative Organization
- Huay yang Municipality Office

PROFILE



Only 3km from one of the geysers lives 74-year-old Moon Toojamroon. He has lived in this area his whole life and his family's land historically was and currently is used for the cultivation of an array of vegetation. The primary crop in the area is betel nut trees and serves as Toojamroon's main source of income. He first uses the betel nuts for personal consumption and then sells the rest at 100 pieces for 50 baht. The betel nut trees currently on his land have been there for over 30 years, so he has only had to plant two sets of the trees in his lifetime. Toojamroon also generates income by selling the core of coconut leaves. For planting and watering, he digs up underground water himself but fears that the rubber factory will exhaust most of the water for its own manufacturing processes. Moon has no idea what he will do for subsistence once the factory is built, but says, "The entire Khon Saan district will be impacted by the factory."



*Left: Large jugs of water that Toojamroon has collected himself
Right: The cores of coconut leaves, wrapped for selling*



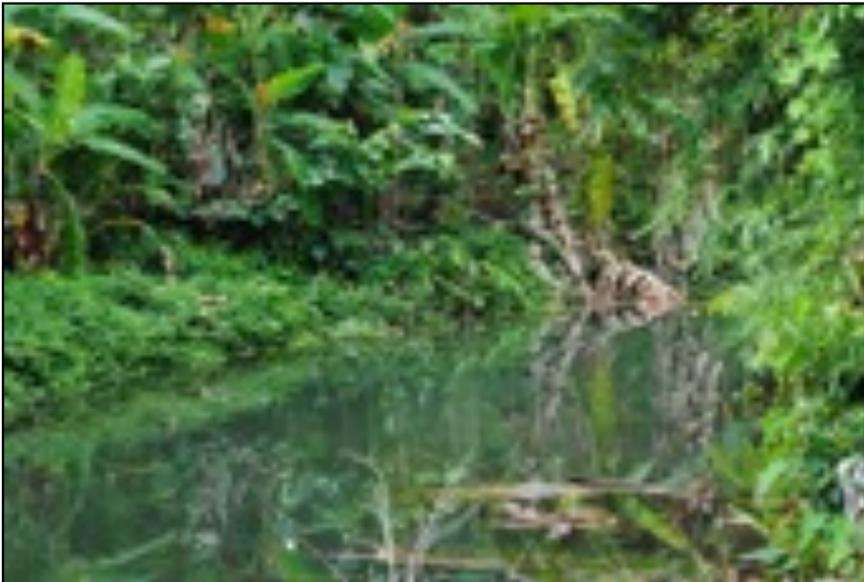
PRODUCE

Over 80 percent of locals in northeast Thailand participate in agricultural practices and the villagers of Khon San are no exception. The produce grown by villagers is predominantly used for consumption. Therefore, farming is not only a source of income, but also offers villagers food security. Among the most common produce grown in the Khon San district are betel nut trees.

Betel nuts are considered a staple produce within the Khon San district. For a single rai of land, villagers can grow about 500 betel nut trees, which produce fruits all year round. Aggregated, one tree produces approximately 300 betel nuts per year.

While betel nuts are a staple in Khon San, the community depends on gathering other produce, as well. Some of these produce include coconut, mango, banana, pineapple and jackfruit. Creeks throughout the district are home to freshwater fish, crab, and morning glory, all of which are collected by villagers. The produce is harvested for consumption and the excess is sold at the market.

The villagers' variety in produce, demonstrates their ability to generate income year-round without the presence of a rubber factory. However, the construction of the factory will jeopardize this. If villagers chose to shift their profession to para rubber farming, they must wait seven years after planting a rubber tree to start collecting rubber juice. Furthermore, rubber juice can be collected only during a few selected months. Given the low price of para rubber, the difference in profit margin between producing rubber compared to betel nuts is insignificant. In other words, an increase in para rubber farming would not be valuable to the general Khon San district. In fact, it has the possibility of being harmful overall.



A creek where villagers collect freshwater fish, crab, and morning glory.

FACTS

The number of Betel nut trees that can be grown on a single rai of land

500

The number of betel nuts one tree produces each year

300

Percent of northeast Thailand that is engaged in agricultural practices

80

PLANT PROFILE

Name: Betel Nut Trees

Description: The betel nut tree is up to 30 m high with leaves that are 1 to 1.5 m and that can be used for basketry. Colors of the fruit can range of yellow, red to orange. Inside the fruit is the betel nut that is often cut into narrow pieces and chewed.

The betel nut is used to create a paste using the leaves and the bark of the tree. The chewing of betel nuts is most common amongst older generations, who can often be found with the red substance. The chewing of the red paste is a significant aspect of Northeastern Thai culture and continues to be done by many individuals.



PLANT PROFILE

Name: Coconut

Description: Coconut trees can grow as high as 30 meters and produce upwards of 30 fruits yearly. The leaves are 4 to 6 meters long and grow on either side of the stem. They are curved, and bright green. The core of coconut leaves are sold in bundles and used to construct brooms

Coconuts differ from other fruit because they contain a large amount of water inside. The seed is to make oil that can be utilized for frying foods or for medicinal purposes while the meat of the coconut is often eaten raw. Coconut is commonly used in soups as well.



PLANT PROFILE

Name: Vegetable Fern/Pak Good

Description: Vegetable Fern/Pak Good is an edible leaf abundant in Khon San. Found throughout Southeast Asia, this plant is rich in antioxidants and vitamins, making it a healthy and tasty addition to meals. Vegetable is typically stir-fried or used in salads.



PLANT PROFILE

Name: Colocasia/Bon

Description: Colocasia/Bon is commonly referred to as elephant ears because of its leaves large size and shape. Both an ornamental decoration and a vegetable, this large, green plant can be eaten as a potato or boiled in coconut milk to make a soup. Elephant ears have been cultivated in Southeast Asia for approximately 28,000 years and makes up much of citizens' diets both in the past and present. When thoroughly cooked, the entire plant is edible, making it a convenient plant to grow, consume, and sell.



PLANT PROFILE

Name: [Thorny Vegetable]

Description:

PLANT PROFILE

Name: [Goom Vegetable]

Description:

PLANT PROFILE

Name: Bananas

Description: Despite popular belief, bananas emerge from a plant and not a tree. The stem grows to about 5 meters tall with flexible leaves that are approximately 3 meters long and 60 cm wide. The leaves can be used as containers to hold other ingredients that will be steamed, boiled or grilled to prevent them from burning and to hold in flavors. The banana plants grow rapidly but require irrigation in the dry season. Bananas vary in size and color – small, large, yellow, red or green. The fruit hangs in clusters and consists of multiple tears. Bananas are used in desserts, such as banoffee, are fried, or are eaten raw with any meal. The fruit is considered a staple in many developing countries and are a good source of potassium and vitamin B₆. The stem of the tree and banana hearts are also utilized in some Thai cuisine.



PLANT PROFILE

Name: Bamboo Tree

Description: Bamboo trees are found throughout warm and moist climates, particularly Thailand. The fast-growing plant species is useful in that it serves multiple purposes. The trees are often found near water and help to prevent soil erosion, while also regulating quantity and quality of the nearby water by preventing flow loss. Additionally, the stem of the tree is used as a sturdy building material and can be used to create various products like chopsticks, flooring, and furniture. Finally, bamboo oil can be extracted from the tree and put to many uses, like skin ointments.





Yellow Jaboticaba
(Myrciaria glazioviana)



Pineapple
(Ananas comosus)



Jackfruit
(Artocarpus heterophyllus)



Chili Peppers
(Capsicum annuum)

RUBBER FACTORY



Location where factory will be constructed

The Rak Khon San Group was founded following the discovery of plans for rubber factory. Since its formation, Rak Khon San has organized protests and collaborated with local villagers and businesses. One of their outputs included submitting a letter of Dong Bang TAO. The letter urged that the documents approving the construction of the rubber factory were disclosed and reviewed.

Wichet U-santiea, the head of Rak Khon San, revealed that the TAO took advantage of the heated political climate to grant a permit for the construction of the factory. The calamity surrounding the Thai government momentarily shifted the focus of Khon San villagers. The TAO saw this as an opportunity to follow through with the documentation necessary for the factory.

Although the construction of the factory has been approved, Wichet reveals that there is still a possibility that the decision can be overturned. According to a lawyer representing Khon San the documents given to TAO for approval were incomplete. Wichet knows that the fight will be hard because “government officials will always side with the campaign of the investors.”

The villagers have visited nearby provinces that have faced negative impacts, such as lower crop yields, as a result of rubber factories. Citizens of these provinces further warned that contaminated groundwater used for drinking and bathing might threaten the health of the villagers. A report detailing potential community impacts of the rubber factory was never issued. Instead the negative impacts were mentioned during a public community hearing.

TIMELINE

Early 2013

- An agent contacted to buy lands from the villagers for 100,000 bt per rai.

12 July 2013

- Sri Trang Agro-Industry PLC submitted a letter requesting for an approval of plant/factory operation and for a village public hearing for the approval of block rubber and compound rubber plant construction. The plant construction explained in the letter are reinforced concrete buildings, including main building (manufacturing building and raw material building), office building, staff and labor houses, wastewater treatment, and fresh water well. The plant capacity of producing block and compound rubber explained was 12,000 ton/month of 18,000 horsepower. The plant area was total 291 rais.

15 July 2013

- Dong Bang sub-district administrative organization released a letter fated n July 15th 2013 requesting an approval from Khon San district chief officer for an official trip outside of Chaiyaphum province on July 19th 2013 to go study about para rubber manufacturing plant of Sri Trang Agro-Industry PLC. The group (total 90 ppl) was consisted of Khon San district office working team, Dong Bang (TAO) sub-district administrative organization's administrators, members of TAO council, TAO office working team, sub-district leaders, headmen, and villagers in the district.

16 July 2013

- Dong Bang TAO declared a request for approval of Sri Trang Agro-Industry PLC manufacturing operation to Khon San district chief officer on July 16 2013.
- Dong Bang TAO produced a letter dated on July 16th 2013 requesting an assistance in using Hin Roi Moei village Temple to conduct a public hearing on July 20th 2013.
- Dong Bang TAO produced an invitation letter, dated on July 16h 2013, to the sub-district administrative council members, sub-district and village headmen to join the village public hearing and comment for consideration of the approval of construction and manufacturing plant process on July 20th 2013 at 9.00.

19 July 2013

- Sri Trang Agro-Industry PLC took village leaders and villagers of total 78 people to a field study visit at their own para rubber production and process factory in Udonthai province.

20 July 2013

- Dong Bang TAO arranged a village public hearing with 463 participants, including an assistant district officer, district agricultural officer, sub-district and village headmen, 17 TAO council members, villagers from 8 villages and the company's representatives.

1 August 2013

- Dong Bang TAO general conference approved the manufacturing plant of Sri Trang Agro-Industry PLC.

15 August 2013

- Local villagers and merchant group who would be impacted from such manufacturing plant operation gathered together and formed up “Rak Khon San Group” (Protect Khon San group) with aims to protest the para rubber plant and protect the natural and environmental resources in Khon San district.

19 August 2013

- Rak Khon San group submitted a letter to the president of Dong Bang TAO requesting for a review the approval and a disclosure of information on the approval. The TAO president received the letter and would share the information on August 23th 2013.

23 August 2013

- Rak Khon San group received the information at Dong Bang TAO office.

14 October 2013

- Hundreds of Khon San villagers on behalf of Rak Khon San group gathered together at the district officer demanding the director-general of Department of Industrial Promotion order to cancel the license of block rubber manufacturing factory in the area. The group also demanded a promise from related organizations about the public hearing whether the community would allow the building or not.

14-15 October 2013

- Rak Khon San group gathered again at the district office to demand about the public hearing promised to set up by the governor on Sept 30 by the vice governor

29 October 2013

- At 08.30 Rak Khon San group villagers gathered at Khon San district public health office to hear about results after the villagers complained about the transparency and injustices of the approval of Sri Trang Agro-Industry PLC rubber manufacturing factory’s license. The national human rights committee also came down to the district to meet with associated governmental organizations.

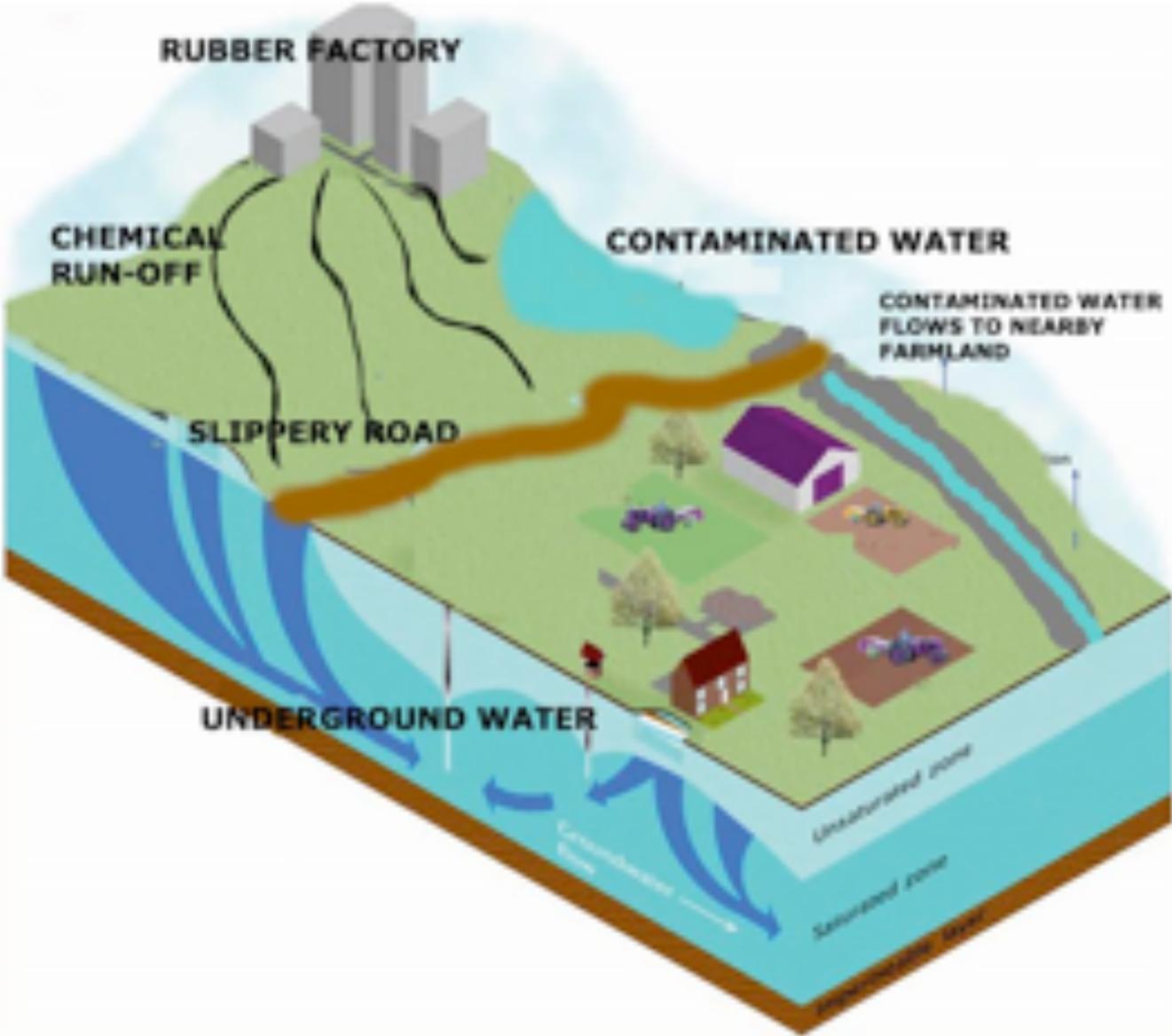
13-14 November 2013

- The defendant’s lawyer filed a petition for permission to withdraw the slander charges of 4 leaders of Rak Khon San group. The court approved the petition and sold the case.

11-13 December 2013

- Khon San villagers together held “Boon Gum Kao Yai” (piling rice festival, villagers come donate rice) at district office with an aim to fundraise, by selling the donated rice, money for the group to keep monitoring, following and opposing the rubber factory.

DIAGRAM OF POLLUTION



EFFECTS FROM THE FACTORY CONSTRUCTION

The rubber factory will pollute the air and emit a strong smell that will cover approximately 10 kilometers in radius. Depending on the production process of the rubber factory, smoke particles from the burning of rubberwood will be released as well as gases like polycyclic hydrocarbons. The pollutants will affect workers' health, more specifically their respiratory system, because of poor ventilation. Supporters of the rubber factory argue that the factory will bring new employment opportunities to Khon San. However, any community members employed by the factory will quickly resign because of the health hazards.

The air pollutants will not only affect factory workers but also local villagers, as they will no longer be able to use rainwater or water from the creek. The gases will contaminate rainwater while waste from the rubber factory will seep into water sources. Water is used to wash, lubricate and dilute the rubber as well as clean containers and floors of the factory. The wastewater from these processes is often very acidic and contains much of the rubber mixture. Elements found in the wastewater include nitrogen, phosphorus, potassium and magnesium. The rubber factory will store these hazardous chemicals in waste ponds. This is a large concern because the ponds are at high risk of flooding and leaking into the community's water supply, particularly during the rainy season.

Independent of contamination, water sources are jeopardized because of industry consumption. The factory processes mentioned above require large amounts of water, meaning that the factory will be digging deeper into underground water sources than the villagers typically do. Additionally, a reservoir will be constructed, which will severely impact the amount of water available to villagers particularly during dry season.

According to Wichet, effects from the construction of the factory will also include an increase in motorbike accidents. Chemicals will be leaked along roads and on trees as they are transported to and from the factory. The chemical spill will reduce the friction and place drivers at high-risk for vehicular accidents.

There are only two sub-districts in Khon San that will not experience similar burdens from the rubber factory. They are located farther from the factory relative to other sub-districts. Most notably, these are the only two sub-districts in which para rubber farming is the majority occupation. The farmers will not have to travel as far in order to deliver their product. Overall, there will be the small fraction of the Khon San population that reaps benefits from the construction of the factory.



Two views of an area that will be affected by polluted water from the rubber factory.



CONCLUSION

Despite Khon San's reputation as a subsistence agriculture and cash crop sub-district, its convenient location for transportation has made it a prime spot for the construction of a rubber factory. However, the factory is a prominent threat to Khon San's current ecosystem and the villagers' way of life.

Furthermore, the planning of the factory counters Khon San's most recent development model, which consists of the following four strategies:

1. Improving quality of life with regard to:
 - a. Education
 - b. Health
 - c. Occupation and income
 - d. Environment
 - e. Life, family & community
2. Creating self-sufficient economy
3. Maintaining traditional culture
4. Conserving/preserving ecotourism

The construction of the rubber factory will disrupt the livelihood of villagers in the Khon San district by contaminating the local water, which is a source for ecological biodiversity and necessary for the food security of the area. Villagers are already fearful of a decrease in produce and loss of income as a result of the factory's wastewater running down into the community's water supply. Additionally, little water will be left for irrigation, as the factory will be pumping most of it for its manufacturing processes. Alongside the destruction of the rich ecological life of the area, the health of the villagers will be put at risk due to the odors and polluted drinking water.

Constructing the factory will force many villagers to change their lifestyles. This not only disrupts traditional culture but could also displace villagers. The destruction of the ecological biodiversity, loss of livelihood, contaminated water sources, and air pollution inhibits the creation of a self-sufficient economy and devastates the ecotourism. If the construction of the rubber factory is executed, Khon San's development strategy will not come to fruition.

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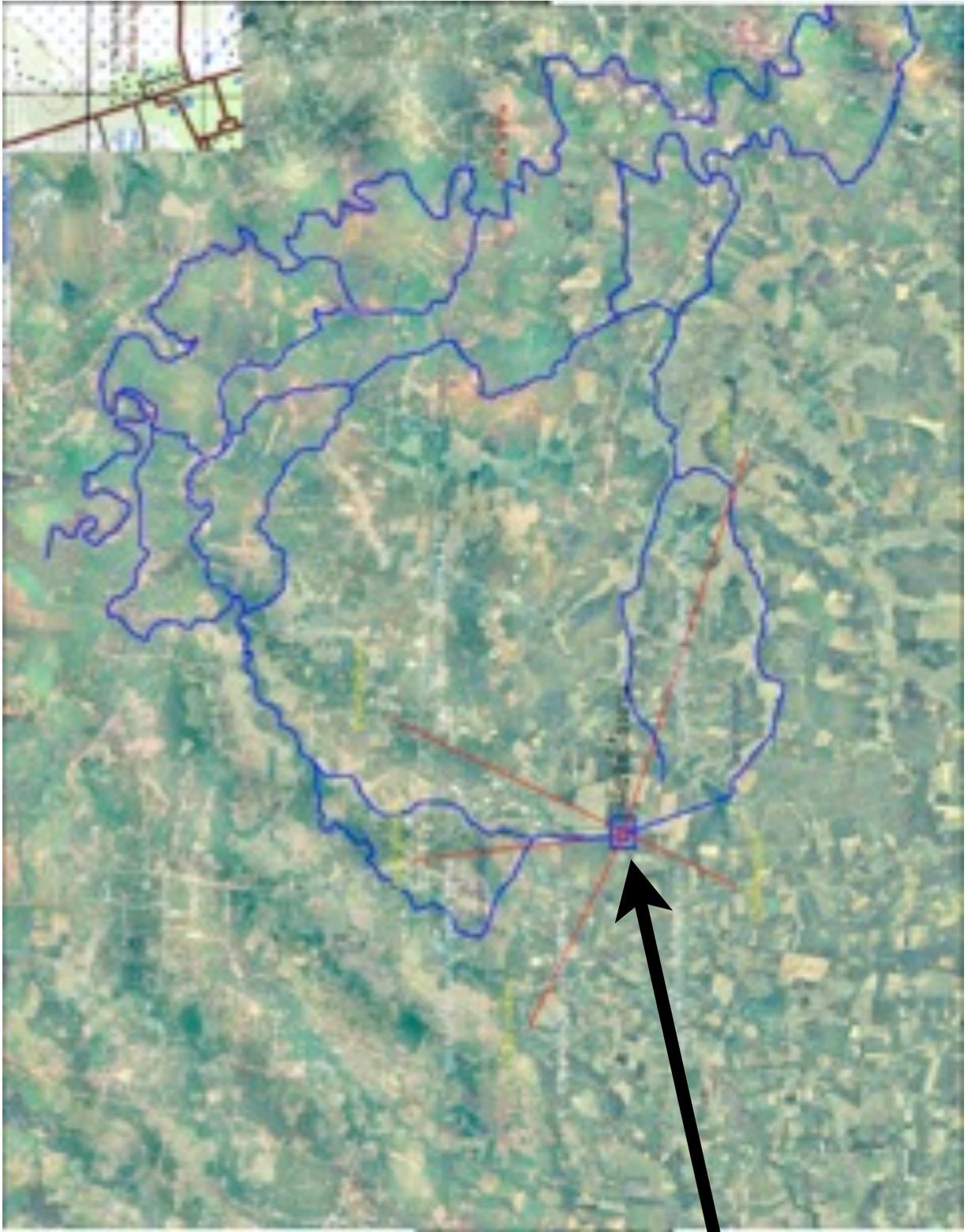
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Rubber Factory



Rubber Factory