

GILDED SHADOWS

unearthing the price of gold

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RESE ARCH QUESTION



HOW CAN WE USE GOLD MINING TO IMPROVE ENVIRONMENTAL AWARENESS?





AIM & OBJECTIVES

AIM

To foster public consciousness of the significance of preserving nature and its resources for future generations.

Use gold mining as an illustration of the detrimental impact of our insatiable need for wealth and extravagance on the natural environment.

Alter individuals' viewpoint via the medium of design.

Develop a creative outcome targeting youngsters between the ages of 10 and 18, since they represent the next generation, with the aim of imparting knowledge on the significance of preserving the natural environment.

OBJECTIVES



Fig 1: *The mask I designed in first semester.
(Author's own)*

INTRODUCTION

Initially, I embarked on a bachelor's degree in electrical and electronics engineering; however, I subsequently recognised that it did not correspond with my fervour for design and creativity. I made the decision to shift my academic trajectory towards pursuing a Master's degree in product design, therefore affording me the opportunity to delve into and nurture my creative abilities. This decision enabled me to combine technical and creative components in my work, blending utility and beauty. It played a crucial role in shaping my academic and career path.

Since the beginning of my MA degree, I have been enthusiastic in developing an environmentally sustainable project or something that may effectively promote public awareness about nature protection. In my first semester (MRP), I investigated the impacts of air pollution and designed a mask (fig 1) inspired by elephants (to establish a connection with my hometown: Thrissur culture). Additionally, I conducted experiments using 3D printing technology. In the second semester (CDP), I chose to explore materials that were completely new to me, namely ceramics and wood, rather than concentrating on a single model. Upon the conclusion of the CDP, my intention was to design a game that would raise awareness about the need of wildlife conservation and foster the development of problem-solving abilities in young people. However, given the intricate nature of the product and the unresolved inquiries about the purpose and target audience of this initiative, I have opted to alter the subject matter. I have selected the subject of “the consequences of gold mining”.

Gold mining is a significant worldwide concern, resulting in pollution, detrimental effects on labour, and environmental degradation. One manufacture of a wedding ring yields 20 metric tonnes of waste, and the majority of clients are uninformed about the impacts of gold mining (*Environmental impacts of gold mining*, 2022). And the primary objective of gold mining, which is the production of jewellery, exacerbates these problems.

RE SE AR CH



Fig 2: Impact of gold mining (*Bachega, 2021*)



WHY GOLD MINING?

There are three primary reasons for my selection of gold mining as a challenge to tackle:

1. “One of the **WORST INDUSTRIES IN THE WORLD** is gold mining. It can push communities out of their homes, pollute drinking water, hurt workers, and ruin clean environments. It puts mercury and arsenic into the water and land, which is bad for people and ecosystems’ health. (*Lebrusan Studio, n.d*)
2. The majority of **CUSTOMERS LACK AWARENESS** about the origin and extraction process of the gold used in their goods. (*Environmental impacts of gold mining, 2022*)
3. Gold mining has substantial environmental and social ramifications on both the natural ecosystem and human communities. The **MAIN PURPOSE FOR WHICH GOLD IS MINED, LUXUARY** (jewellery) (*The many uses of gold, n.d*), worsens these problems.



Fig 3: Before and after gold mining (*Takyi et al., 2021*)

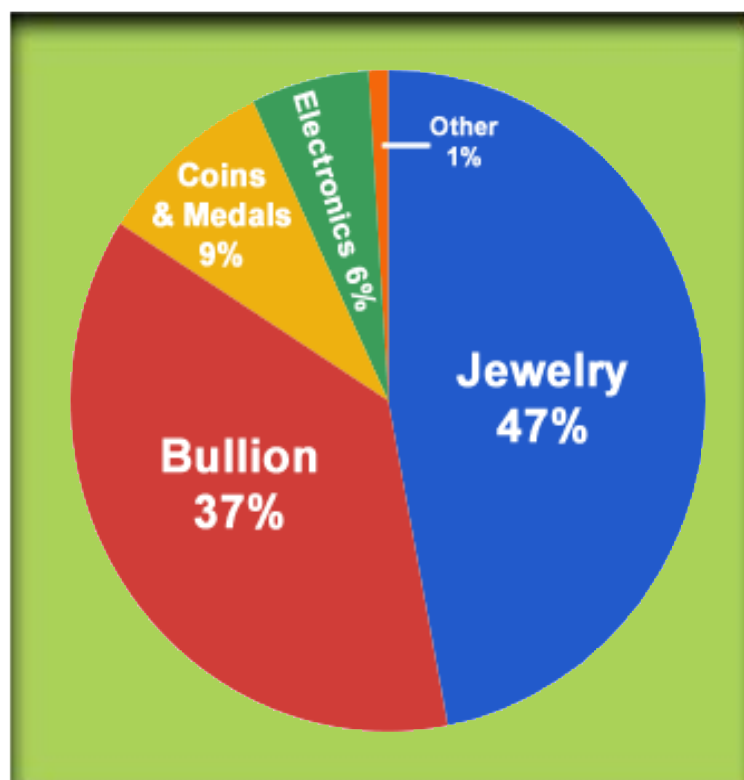


Fig 4: Uses of gold globally (*The many uses of gold, n.d.*)



HISTORY OF GOLD MINING METHODS

- » Gold had great significance in Ancient Egypt and was prominently used in funeral rituals, most famously shown by the iconic burial mask of Tutankhamun. (*Schorsch, 2017*)
- » Ancient Greece extensively participated in large-scale gold mining operations, where the Golden Fleece served as a symbol of its cultural and economic significance. (*The Spotlight, 2022*).
- » During the Middle Ages, the Roman Empire persisted in its gold mining activities, with a particular emphasis on Spain. (*Hartwick, 2013*).
- » During the period from the 5th to the 15th century, the Byzantine Empire was renowned for its significant gold output and the reliability of its currency, the solidus. (*Wikimedia Foundation, 2023*)
- » During the Islamic Golden Age, which spanned from the 8th to the 14th century, there were notable advancements in science and technology that resulted in the improvement of mining methods. (*Alzahrani, 2014*)
- » Hernán Cortés and Francisco Pizarro, the Spanish conquistadors, plundered riches from the Aztec and Inca empires. (*Cartwright, 2022*)
- » The California Gold Rush, which occurred from 1848 to 1855, was a significant turning point in the process of extracting gold in the United States. (*A&E Television Networks, 2022*)
- » The Witwatersrand Gold Rush, which occurred in 1886 in South Africa, stands as one of the most significant gold rushes in recorded history. (*Waldie, n.d*)
- » The Klondike Gold Rush, which occurred in 1896, enticed prospectors to the Yukon region in Canada due to the discovery of gold. (*U.S. Department of the Interior, 2021*)
- » The mining process known as dredging reached its peak of success in the 20th century. (*Mathioudakis et al., 2023*)



Fig 5: Mask of Tutankhamun
(*Egypt Museum*, 2023)



Fig 6: Aureus (*Antoninus Pius*
138-161AD gold aureus rome,
2023)



Fig 7: Golden Fleece (*The Spotlight*, 2022)



Fig 8: Solidus (*Austin Coin, 2021*)



Fig 9: California gold rush (*Yang, 2016*)



Fig 10: Witwatersrand Gold Rush (*Waldie, n.d.*)

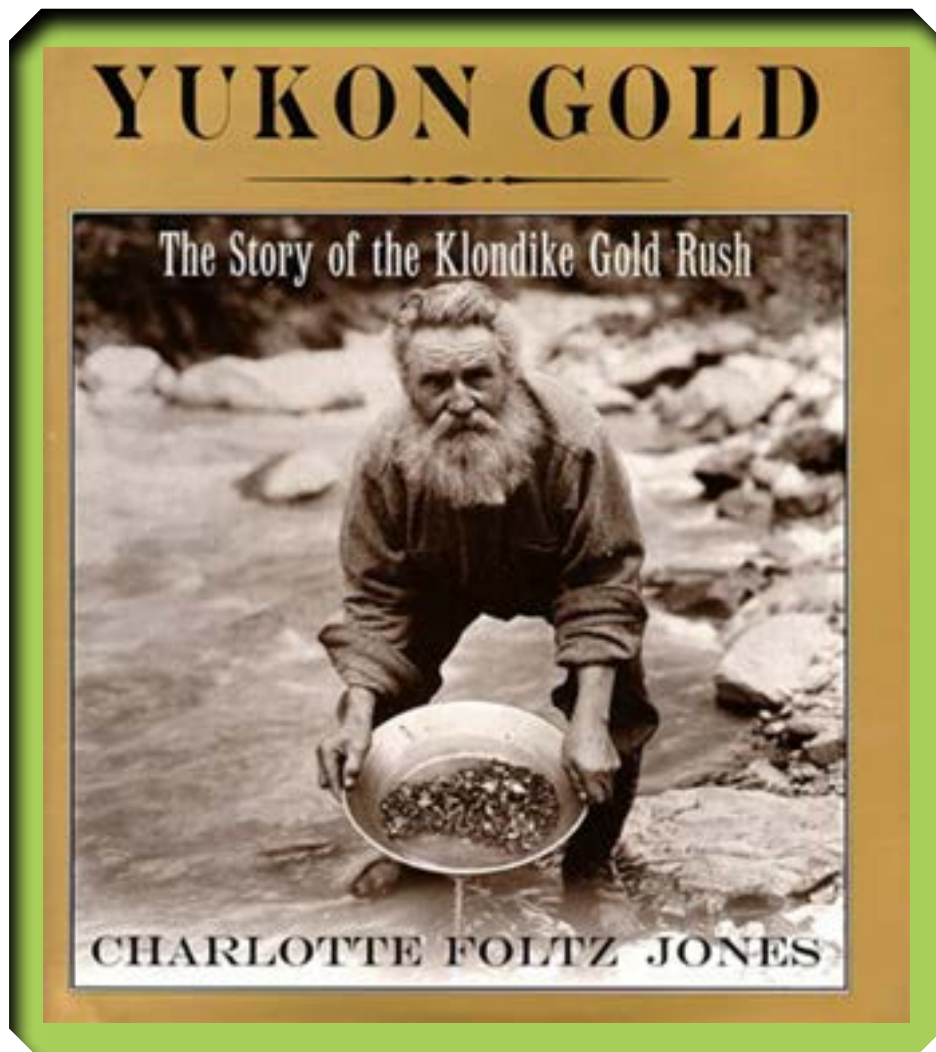


Fig 11: Klondike gold rush (*Jones, 1999*)

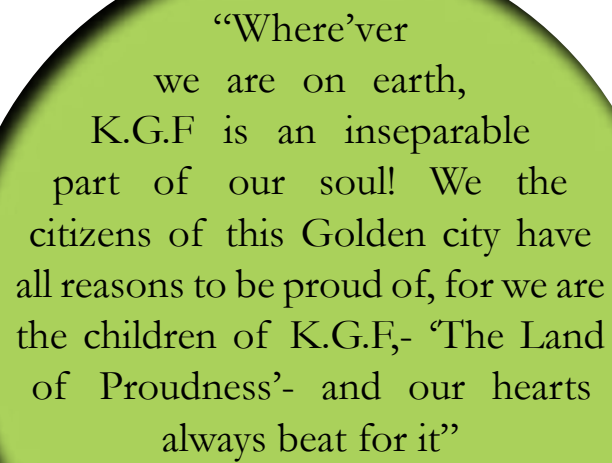
KOLAR GOLD FIELD

KGF, also known as Kolar Gold Field, is an ancient gold mine located in Karnataka, India, with origins reaching back to the 1700s. British police retrieved 900 tonnes of gold during this period, while Indian labourers endured torture and compulsory dismissal. In 1875, the mine was given the new name Mini London and it achieved the status of being the second deepest gold mine globally. Bharat Gold Mines Limited was established in 1972 with the purpose of supervising activities. However, the mine's gold reserves were depleted by 2001. *(Raghavan, 2022)*

The film KGF portrays the smuggling of gold, which was prohibited by the Indian government from 1951-2018. *(Shamseel, 2023)*



Fig 12: A scene from movie KGF *(Shamseel, 2023)*



“Where’ver
we are on earth,
K.G.F is an inseparable
part of our soul! We the
citizens of this Golden city have
all reasons to be proud of, for we are
the children of K.G.F,- ‘The Land
of Proudness’- and our hearts
always beat for it”

- KGF citizens. (*Srikumar,*
2014)



MECHANISM OF GOLD MINING

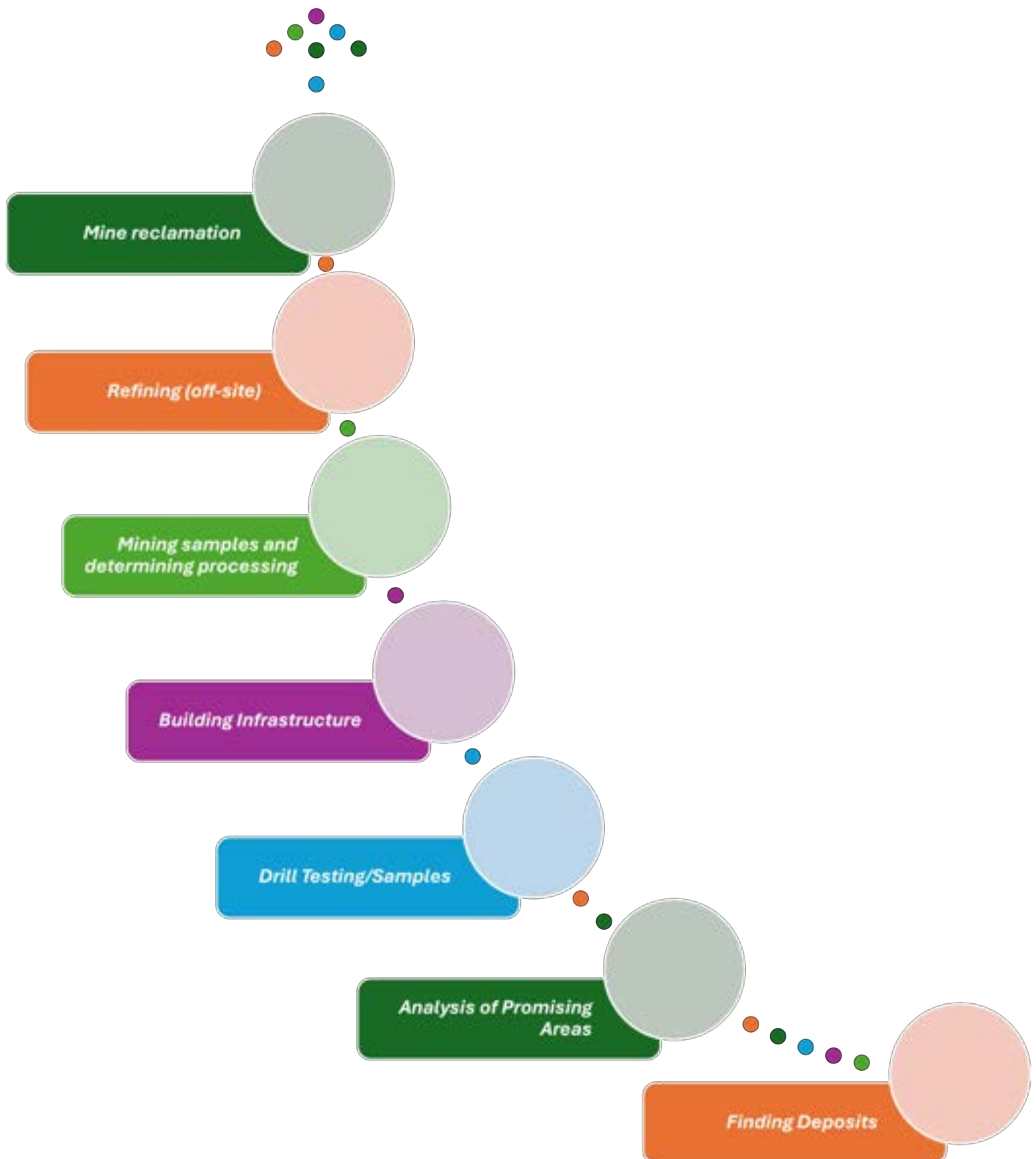
The gold mining process encompasses several stages, such as prospecting for deposits, evaluating prospective regions, conducting drilling operations, testing samples, constructing necessary infrastructure, and choosing the specific mine type. Geologists use specialised maps to locate prospective gold resources and analyse the physical and chemical attributes of surface rocks.

After identifying these specific regions, potential sites for drilling are determined by using methods such as remote sensing, geophysics, and geochemistry. Drill tests and sampling are conducted to ascertain the dimensions, grade, and quantity of gold present in the subsurface. This data is used to ascertain the presence of a sufficient quantity of gold under the earth's surface, hence determining the feasibility of mining operations.

Engineers assess the viability of mining based on the quantity and quality of resources. They next analyse the nature of the mine, identify any physical barriers, and evaluate the environmental consequences. Prior to commencing mining operations, it is vital to establish essential infrastructure such as roads and processing facilities. The time span between the first discovery and the commencement of mining operations might extend up to a maximum of five years.

Following the mining operation, samples are collected to assess the metallurgical characteristics of the ore and choose the most suitable processing method. On-site processing include the crushing of ore and subsequent application of several procedures, depending upon the characteristics of the related minerals. Off-site refining is a process that involves melting and processing crude gold with chloride, resulting in the production of gold that is 99.5% pure. The gold is then moulded into electrodes and inserted into an electrolytic cell, resulting in the production of gold that is 99.99% pure.

Mine reclamation is a latter stage in the process, since the gold deposits inside the mine will ultimately be depleted. Previously, the mine would be sealed up and left deserted, but nowadays, reclamation initiatives strive to restore the area to its original condition. (*ProvidentMetals et al., 2012*)





IMPACT OF GOLD MINING ON NATURE:

Gold mining entails significant **deforestation** (*Caballero Espejo et al., 2018*), **soil degradation** (*Basir-Cyio, et al., 2020*), **water pollution** (*Casso-Hartmann et al., 2022*), **erosion and sedimentation** (*Jarsjö et al., 2017*), and **air pollution** (*Impact of metal mining on air quality, 2022*). Let's have a look at a case study in Shekiso: The issue of environmental sustainability has emerged as a significant global concern. Currently, the mining activities in the Shekiso area have caused a significant environmental problem. These occurrences have sparked an often heated discussion concerning the criteria for designating places as unsuitable for mining due to their high socioeconomic and environmental vulnerability. Hence, the objective of this research is to evaluate the environmental impacts of gold mining in a specific kebele within the Shekiso District, Guji Zone, Ethiopia. The main data used for this research was acquired from a sample of 283 individuals randomly chosen within the study region. The data was gathered via a structured interview, focus group discussions, observation, and key informant interviews, and then analysed using descriptive statistics. In addition, a semi-structured interview was used to gather data from the mining and energy office in Shekiso District. The key informant was especially chosen to deduce the impact of gold mining on the ecology in the research region. The study findings demonstrate that mining plays a significant role in generating money (53%), providing raw materials (30%), and creating job opportunities (17%).

However, gold mining is a primary factor contributing to several environmental issues, including water scarcity (8.8%), depletion of stream water (10.6%), erosion of soil (20.8%), damage to infrastructure (17.6%), and disruption of the ecosystem (7.0%). In addition, about 8.8%, 8.8%, and 6.3% of households said that mining activities result in deforestation, air pollution, and the loss of aquatic life, respectively. In the research region, the absence of environmental awareness programmes in gold mining villages hinders the protection of the natural environment for sustainable usage. Consequently, it is essential for local authorities to increase public knowledge, streamline the process of registering mining activities, and establish regulations and mechanisms for enforcement, all with the aim of promoting environmentally sustainable mining practices. (Mencho, 2022)

Environmental impacts of the gold mining.		
Response of the households	Frequency	Percent
Water shortage	25	8.8
Dehydration of the brook	30	10.6
Soil erosion	59	20.8
Damage of street	50	17.6
Destruction of ecosystem	20	7.0
Deforestation	25	8.8
Water contamination	31	10.9
Air effluence	25	8.8
Loss of the aquatic life	18	6.3
Total	100	100%

Fig 13: Impacts of gold mining on nature (Mencho, 2022).



IMPACT OF GOLD MINING ON HUMAN

The health issues faced by underground gold miners encompass a range of ailments. These include reduced lifespan, heightened risk of various cancers such as tracheal, bronchial, lung, stomach, and liver cancer, increased susceptibility to pulmonary tuberculosis (PTB), silicosis, and pleural diseases. Additionally, miners are more prone to insect-borne diseases like malaria and dengue fever, as well as noise-induced hearing loss. There is also an elevated prevalence of certain bacterial and viral diseases, along with disorders affecting the blood, skin, and musculoskeletal system. These issues are succinctly recorded in gold miners hailing from Australia, North America, South America, and Africa. Typically, the presence of HIV infection or excessive intake of alcohol and tobacco tended to worsen pre-existing health issues. Miners who used elemental mercury for the purpose of amalgamating and extracting gold experienced significant mercury contamination. Occupationally exposed persons had mercury quantities in their air, fish diet, hair, urine, blood, and other tissues that much beyond the safety standards set by national and international regulatory bodies for the protection of human health. Nevertheless, there was no conclusive epidemiological data indicating significant health issues related to mercury in this particular group. (*Eisler, 2003*)

Artisanal and small-scale gold mining is the world's largest source of mercury pollution

Estimated global mercury emissions by sector, 2018 (pounds). Artisanal and small-scale gold mining accounts for 38% of total emissions, surpassing well-known sources such as coal-fired power plants and waste incineration.

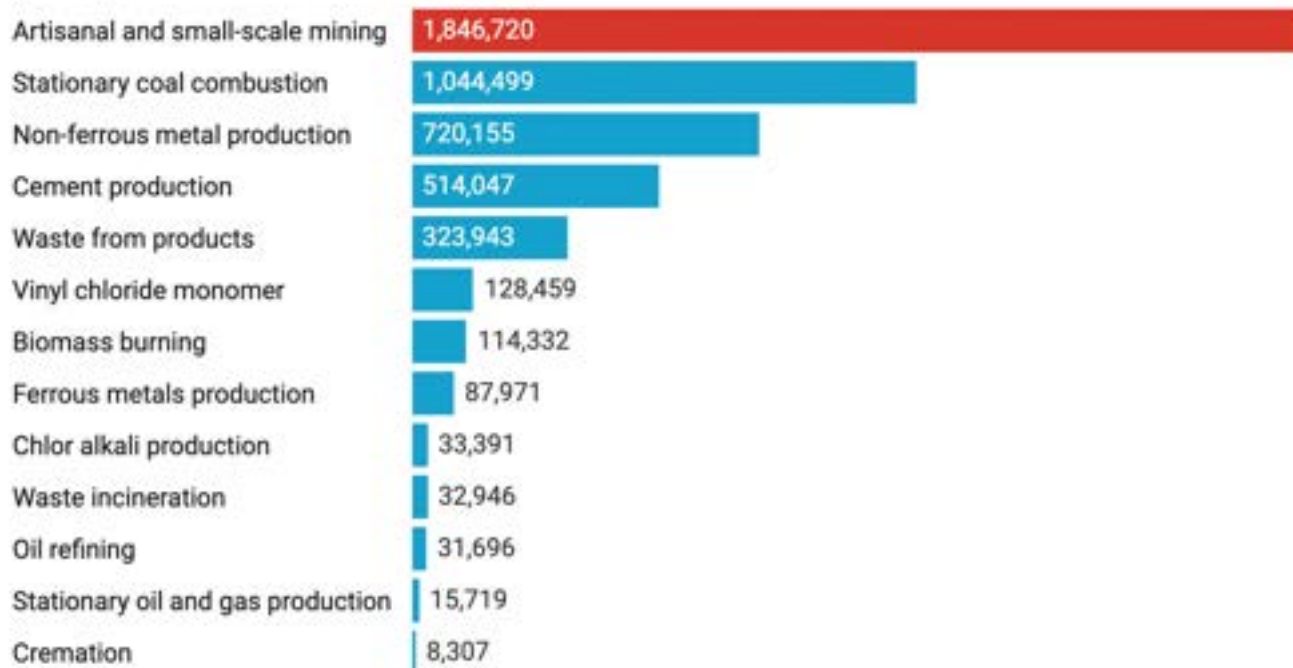


Chart: The Conversation, CC-BY-ND • Source: [UNEP](#) • [Get the data](#)

Fig 14: Various sources of mercury pollution (*Gerson et al., 2020*)

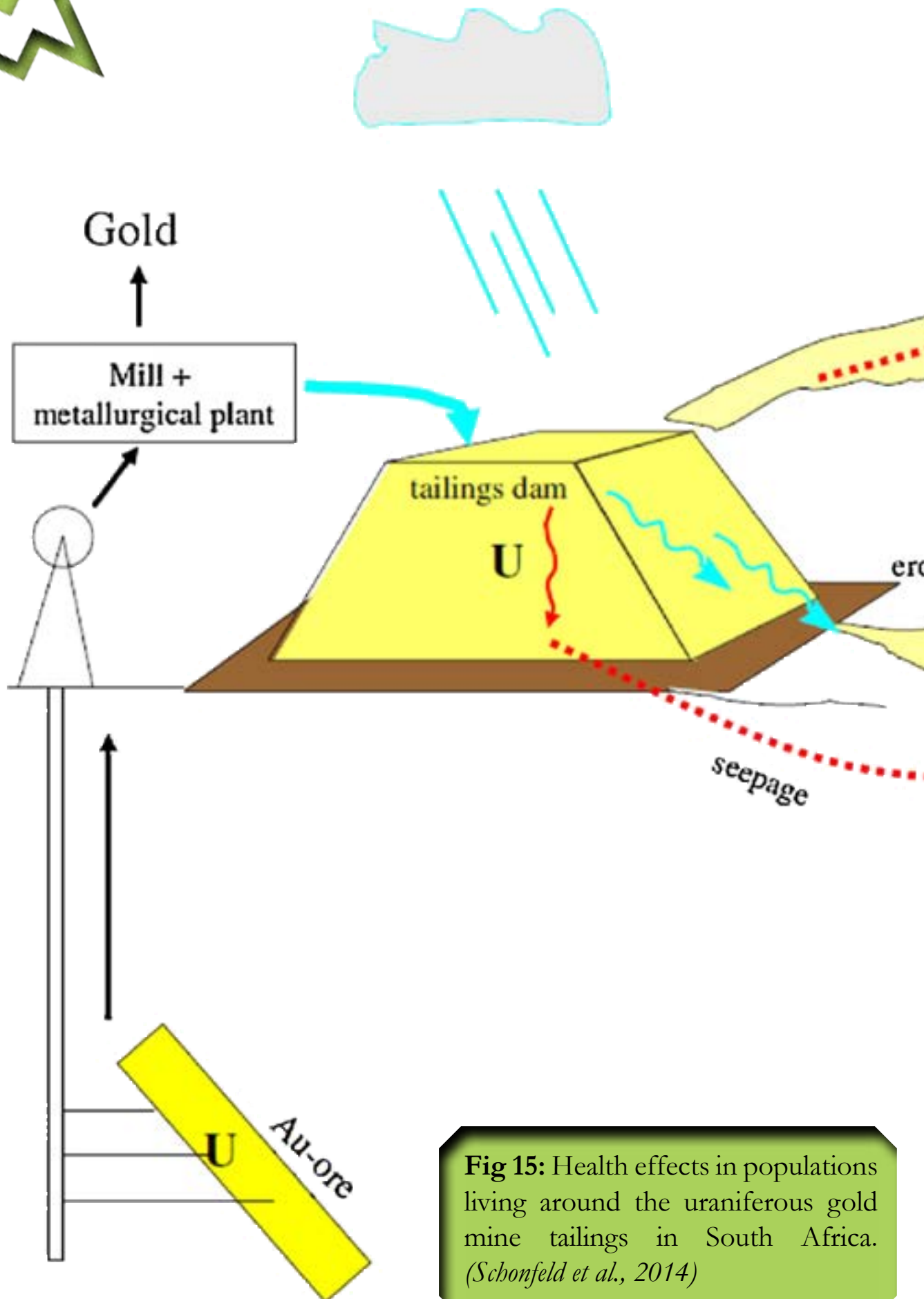
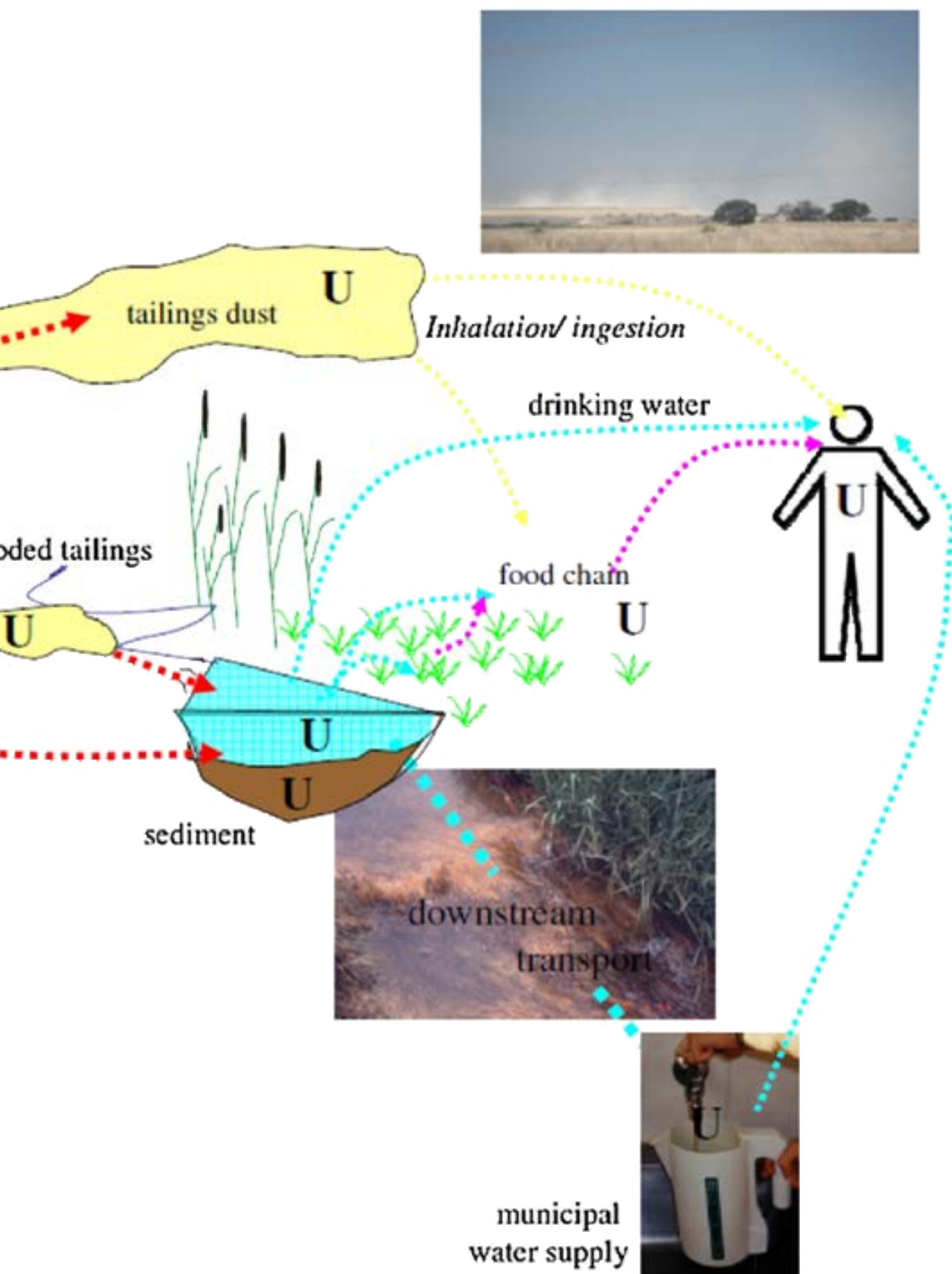


Fig 15: Health effects in populations living around the uraniferous gold mine tailings in South Africa. (Schonfeld et al., 2014)



MAJOR GOLD-MINING DISASTERS

The gold mining industry has had a substantial influence on human lives, the environment, and local economy, with various disastrous catastrophes occurring. Significant occurrences including the New Australasian Gold Mine catastrophe in 1882, when 22 men were trapped in the Australasian No.2 Mine (*Design, n.d*), the 1971 Certej dam collapse (*adevarul.ro, 2010*) and the Omai Mine Tailings Dam collapse in Guyana (*Davison, 1995*).

The Ok Tedi mine in Papua New Guinea has resulted in substantial environmental degradation, leading to the loss of food crops and challenges in providing social services. Environmental organisations have accused BHP of endorsing pollution. (*Burton, 1999*)

In the year 2000, Dome Resources unintentionally discharged sodium cyanide into a river in Papua New Guinea, resulting in health issues caused by the emission of this chemical compound. The National Disaster and Emergency Service issued health advice to people, urging them to abstain from ingesting the river water. The firm assured people that the cyanide would be diluted by the rivers, so reducing any possible risk. (*BBC News, 2000*)

In 2022, an uncontrolled gold mining site in Burkina Faso led to the death of 60 individuals and caused injuries, however the specific reason and technique of gold mining remain ambiguous. (*Reuters, 2022*)

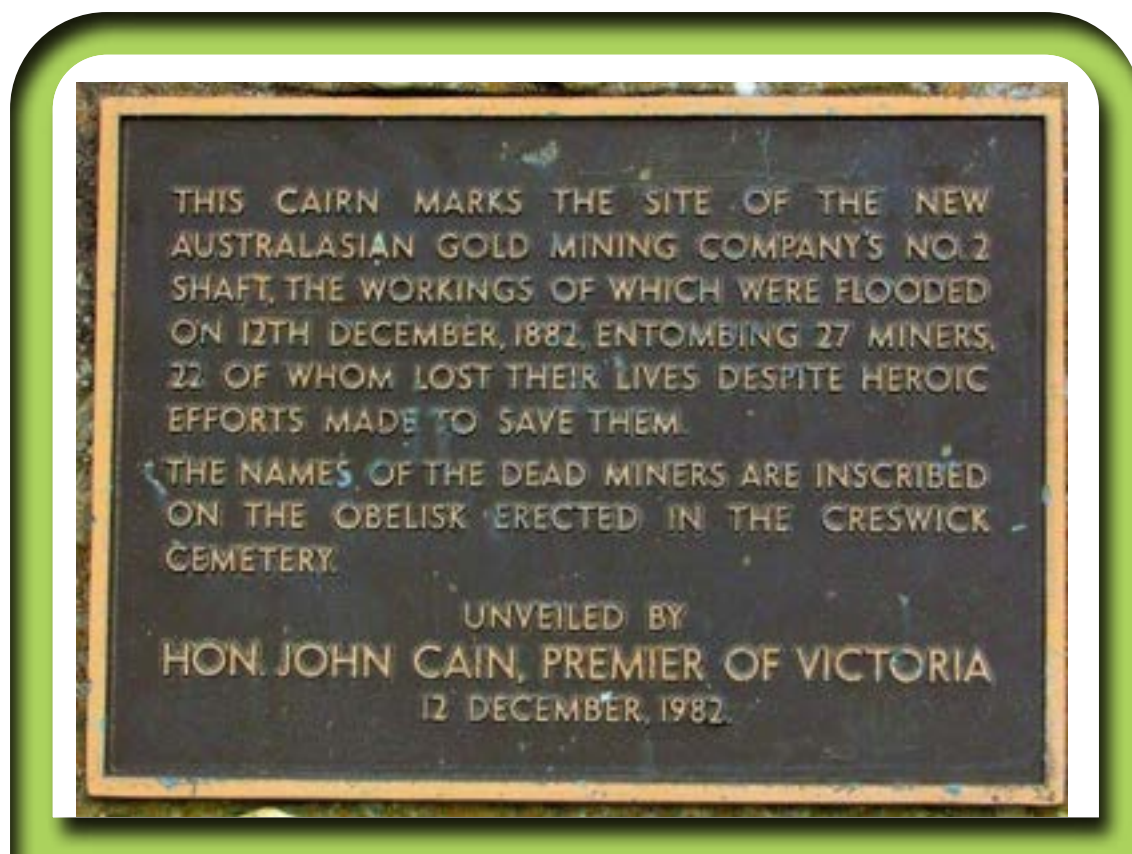



Fig 16: Australasia Mine Disaster sculpture (*Design, n.d*)



GOLD MINER'S VIEW

The Gold Institute of the Gold Miners' Association claims that by implementing strategies including land reclamation, animal conservation, and innovative technology, the gold mining sector is dedicated to environmental responsibility. Despite the fact that the business is governed by a number of state and federal regulations, gold miners feel that their voluntary efforts have helped to create an environmentally acceptable situation in North America. Companies, however, frequently undervalue the effects of previous cyanide-related mishaps, such as overflowing dams, tailings pond collapses, and transportation catastrophes. When they travel to underdeveloped nations, they don't know about these instances and frequently dismiss them as "the result of extreme weather conditions." (*Müezzinoğlu, 2003*)

USAGE OF GOLD



Gold, a valuable metal renowned for its versatility in appearance, ability to conduct electricity, and durability against corrosion, has been used across several industries and relics for thousands of years. Gold has been used in the creation of beautiful objects and jewellery, with around 80% of newly mined or recycled gold being utilised for the manufacturing of jewellery. Gold has historically functioned as a kind of money due to its scarcity, usefulness, and desirability, which all contributed to its high value as a tradeable asset. The primary industrial use of gold is in the field of electronics, where mobile phones typically contain around 0.034 grammes of this precious metal. Gold alloys are used in dentistry for many purposes including dental fillings, crowns, bridges, and orthodontic devices. This is because they possess non-allergenic qualities and are easily manipulated. The use of gold in aerospace shows its boundless capacity, since NASA integrates gold in diverse applications in every spacecraft it deploys. (*Mining*, 2020)

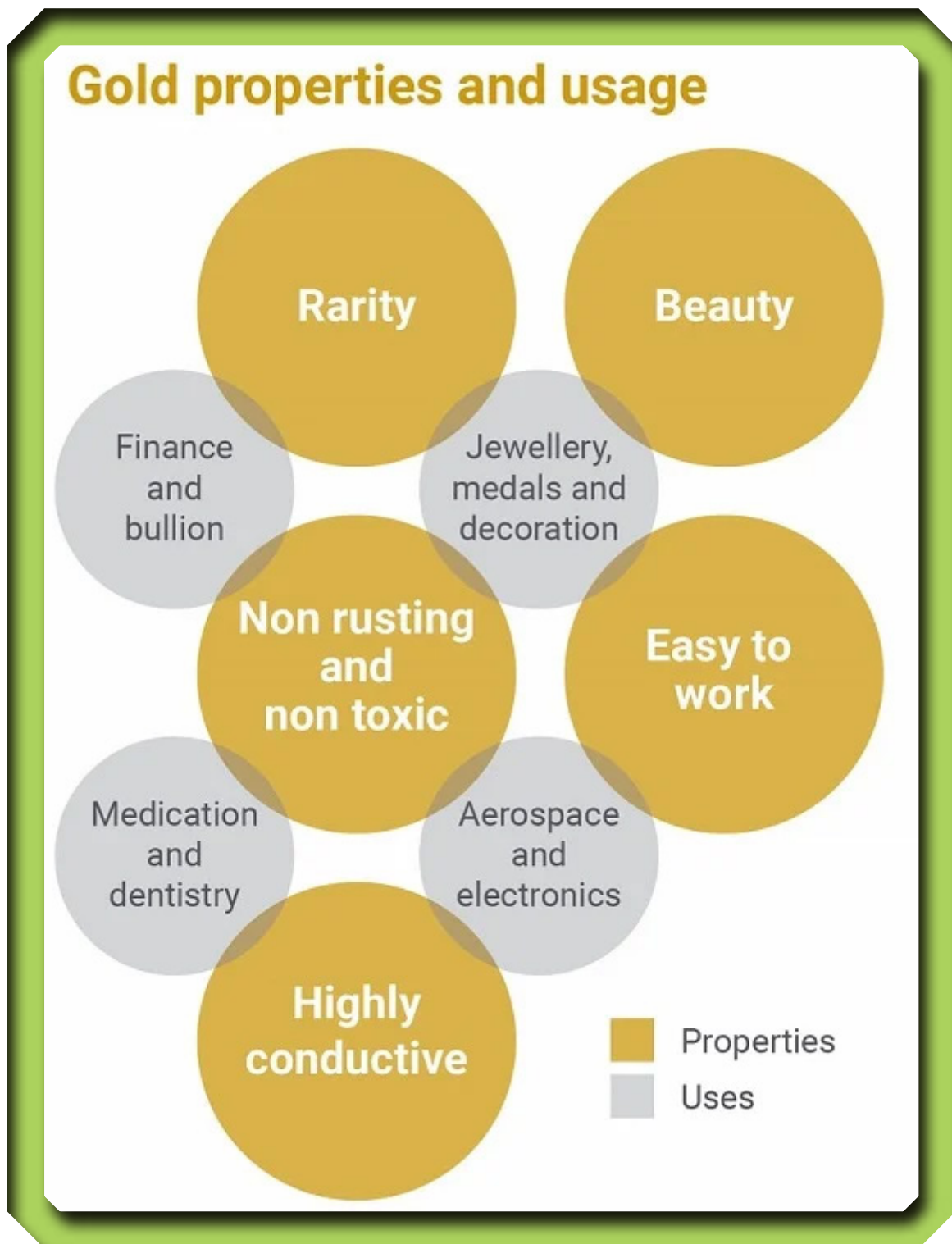


Fig 17: Properties and usage of gold (*Uses of gold - what is gold used for?* | *Bullionbypost* , n.d)



CERTIFICATIONS FOR GOLD

When I reached out to Jaime Valderrama, a representative for the Alliance for Responsible Mining, about fairmine certifications, he said that Fairmined is a certification emblem for gold that is mined in an ethical manner. This certification guarantees that small-scale and artisanal miners strictly follow ethical methods. It fosters social progress, ecological conservation, fair labour conditions, and economic accountability. Fairmined gold serves as a sustainable substitute for gold, effectively reducing both environmental and social repercussions. Certifications such as Fairmined and Fairtrade place emphasis on sustainable practices, equitable working conditions, transparency, community development, and the promotion of a circular economy via recycling and reuse.

In addition, he said that the actor's map permits licenced brands of jewellery to sell pieces made using fairmined metals. Upon examining the actor's map, I discovered that although there are a multitude of authorised suppliers and licenced brands, there are **JUST SEVEN** goldmines that have obtained fairmine certification.



Fig 18: Fairmine (Campbell, 2018)

and fairtrade (Fairtrade Gold Bar 999.9 ‰ 24 kt - 1 oz 31.1 G Cast Bar, n.d) logos

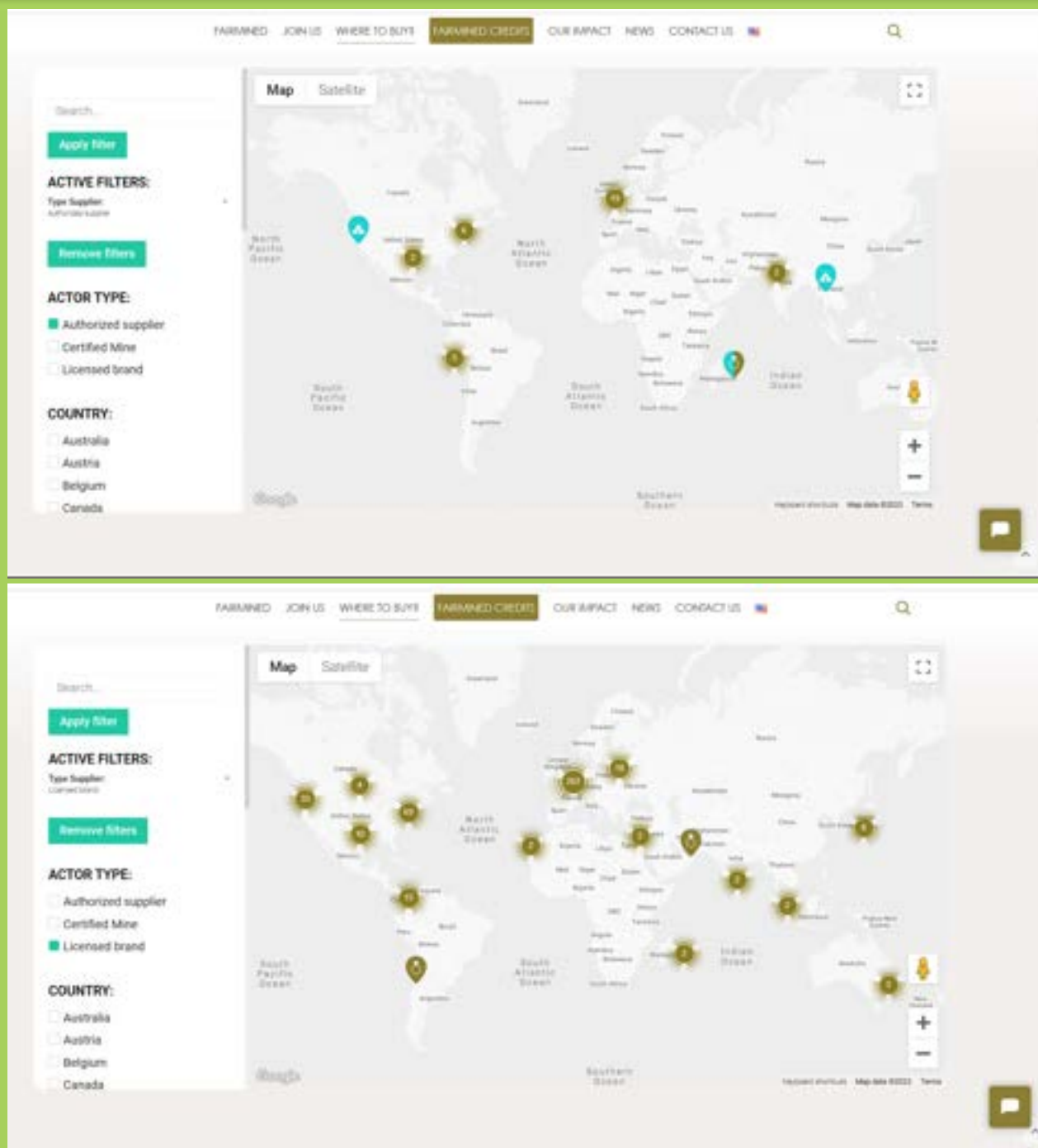


Fig 21: Authorized suppliers and licensed brands with fairmine certifications (*Actors map, 2023*)

The gold mining sector is deficient in certificates that guarantee the preservation of the environment and the safety of miners, resulting in systemic problems. The absence of established criteria and governmental supervision enables financial incentives to take precedence over environmental considerations. Miners often encounter hazardous working circumstances, and the absence of licenced mines undermines safety protocols and human rights. Furthermore, this matter has an impact on customers, prompting a thorough evaluation of their jewellery and investment decisions.



Fig 22: Top 20 gold mines in the world (*Staff, 2019*)



SURVEY

THE GOLDEN SURVEY !!!

A survey of 25 participants revealed a significant **lack of knowledge** about the environmental and societal impacts of gold mining. Despite the negative consequences such as deforestation, habitat loss, water pollution, and exploitation of vulnerable groups, participants were willing to reassess their use of gold accessories. They also showed a high level of accountability for the negative impact of conventional gold mining methods. The majority of participants expressed a willingness to adopt an alternate method for using mined gold, such as diverting it towards medicinal and technical applications. This approach aligns with their commitment to ethical consumerism.

The **CHANGE IN PERSPECTIVE** indicates an increasing awareness of the environmental and societal implications of gold mining. This highlights the potential influence of well-informed consumer decisions on industrial practices, promoting a more sustainable and accountable approach to resource use. The study results highlight the need for education to promote beneficial transformation and the potential for a communal transition towards more ecologically and socially conscious practices in the use of valuable resources. This poll demonstrates the significant impact that well-informed consumer decisions can have on creating a sustainable and ethical future.

The survey was generated on the online platform Opinion Stage (<https://www.opinionstage.com/>).

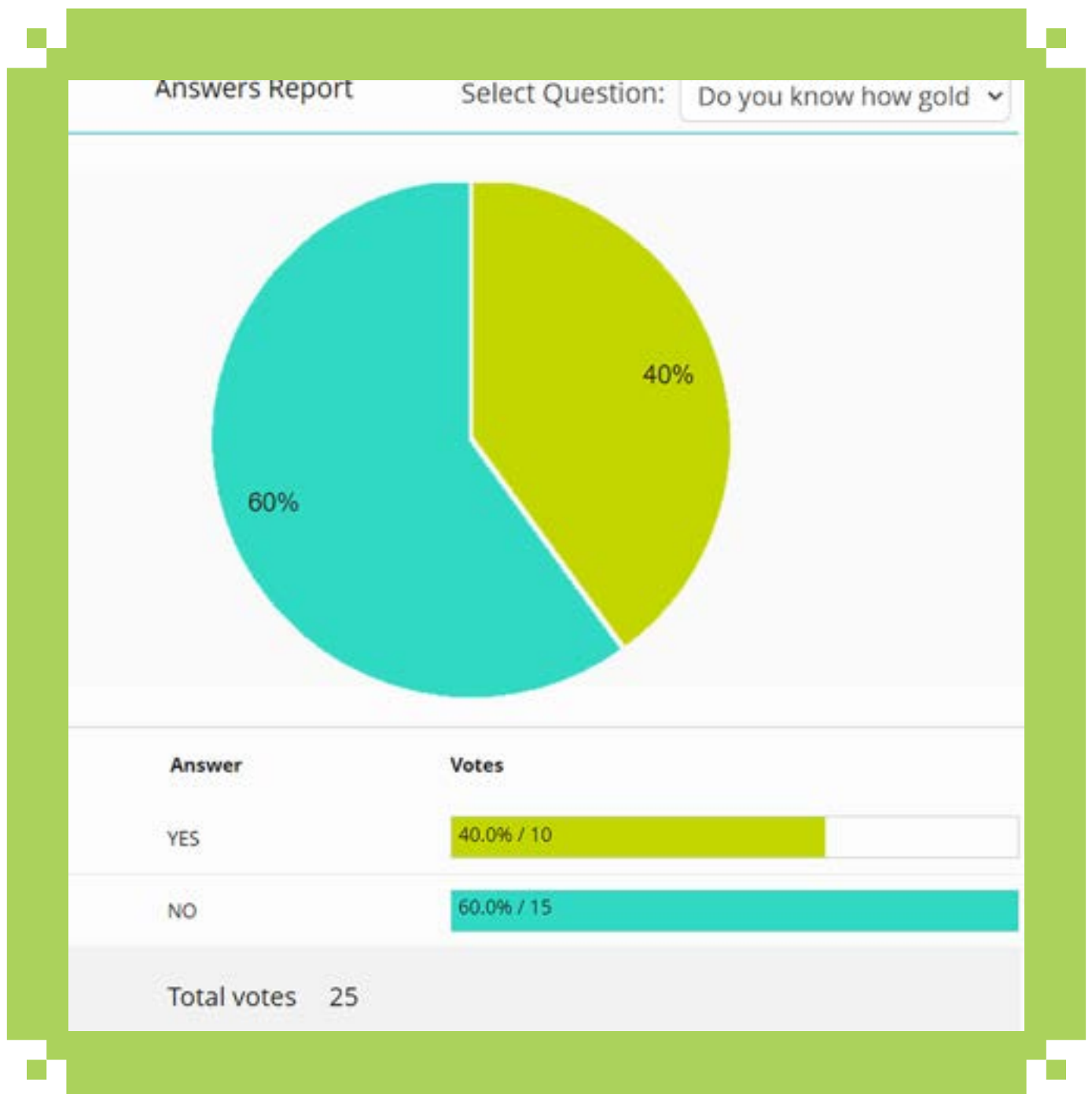


Fig 23: Survey result showing lack of knowledge about impacts of gold mining.



Fig 24: Survey results





The question of **whether one is ready to give up purchasing golden ornaments** reveals a spectrum of perspectives. There were 4 types of responses:

1. Yes
2. Not sure; it's not so black and white.
3. Yes, I am ready to give up buying golden ornaments. I am aware of my generation; let's make them healthier.
4. I like gold or ornaments, but now I understand the other side of gold mining.

A clear-cut conviction or set of well-defined values drives the first response, which is a decisive stance. The second response acknowledges the complexity of the issue, acknowledging the shades of grey inherent in complex decisions. A sense of responsibility and generational awareness characterise the third response, which ties personal values to a sense of collective responsibility. An improved understanding of the bigger-picture effects of gold mining is what led to the fourth response, which reflects a change in perspective. These responses highlight the multifaceted nature of decision-making and the importance of meaningful dialogue in fostering a collective consciousness about the impacts of our choices.

◀ My Items	EDIT ITEM	VIEW RESULTS	EXPORT	PREVIEW	EMBED & SHARE	▼
Answers Report		Select Question: Are you ready to give u ▼				
Submission Time	Answer	Host URL	os_utm_source			
2023-11-19 09:03:38	yep	https://www.opinionstage.com/p...	null			
2023-11-19 08:51:41	Not sure, it's not so black and white.	https://www.opinionstage.com/p...	null			
2023-11-19 08:43:09	Yes.	https://www.opinionstage.com/p...	null			
2023-11-19 08:25:35	I don't buy gold ornaments	https://www.opinionstage.com/p...	null			
2023-11-19 08:08:46	Yes, I ready to give up buying golden ornaments. I am aware about my generation, let's make them healthier.	https://www.opinionstage.com/p...	null			
2023-11-19 08:02:14	Yes	https://www.opinionstage.com/p...	null			
2023-11-19 07:56:13	Yes for sure	https://www.opinionstage.com/p...	null			
2023-11-19 07:55:14	Yes	https://www.opinionstage.com/p...	null			
2023-11-19 07:52:57	Yes.	https://www.opinionstage.com/p...	null			
2023-11-19 07:42:25	Yes	https://www.opinionstage.com/p...	null			
2023-11-19 07:37:24	Yes. Totally give up buying because for better tomorrow	https://www.opinionstage.com/p...	null			
2023-11-19 07:08:43	Bad	https://www.opinionstage.com/p...	null			
2023-11-19 07:08:42	Yes. I totally avoid purchasing of gold ornaments.	https://www.opinionstage.com/p...	null			
2023-11-19 07:07:06	Yes	https://www.opinionstage.com/p...	null			
2023-11-19 07:04:54	I like gold or ornaments but now I understood other side of gold mining	https://www.opinionstage.com/p...	null			
2023-11-19 07:00:08	No	https://www.opinionstage.com/p...	null			
2023-11-19 06:56:28	Yeah	https://www.opinionstage.com/p...	null			
2023-11-19 06:46:28	I don't have any golden ornaments	https://www.opinionstage.com/p...	null			
2023-11-19 06:43:58	Yes. For better tomorrow	https://www.opinionstage.com/p...	null			
2023-11-19 06:41:03	Yes	https://www.opinionstage.com/p...	null			
2023-11-19 06:40:22	No	https://www.opinionstage.com/p...	null			
2023-11-19 06:38:50	yep	https://www.opinionstage.com/p...	null			
2023-11-19 06:38:36	Yes	https://www.opinionstage.com/p...	null			
2023-11-19 06:37:41	Yes	https://www.opinionstage.com/p...	null			
2023-11-19 06:34:33	Yes	https://www.opinionstage.com/p...	null			

Fig 25: Responses received from participants for their willingness to give-up golden ornaments.



The issue of gold usage and mining is complex and multifaceted, with various **recommendations** addressing environmental, economic, and societal implications. Some suggestions include recycling gold, including electronic waste, halting gold mining, focusing on economic and infrastructural development, minimizing gold usage, and involving governments in economic control. The idea of mining as a protector of nature and sustainable development challenges common perceptions, prompting further exploration into environmental practices. Long-lasting gold-based equipment reduces waste, while reducing gold usage in jewelry for affordable and better equipment promotes affordability and technological advancements. The use of gold in PC chips for gaming reflects the intersection of technological innovation and resource utilization, highlighting the need for a comprehensive approach to balancing economic development, environmental conservation, and responsible consumption.

My Items

EDIT ITEM

VIEW RESULTS

EXPORT

PREVIEW

EMBED & SHARE

Answers report

Select Question: Please provide your res

Submission Time	Answer	Host URL	SE_USER_SOURCE
2023-11-19 08:53:38	use it in pc chips so i can game efficiently 🎮	https://www.opinionstage.com/p...	null
2023-11-19 08:51:41	!	https://www.opinionstage.com/p...	null
2023-11-19 08:43:09	-	https://www.opinionstage.com/p...	null
2023-11-19 08:25:35	All forms of recycling of gold including recycling electronic waste containing gold.	https://www.opinionstage.com/p...	null
2023-11-19 08:08:46	Stop mining of gold and save environment.	https://www.opinionstage.com/p...	null
2023-11-19 08:02:14	Mined materials are needed to construct roads and hospitals, to build automobiles and houses, to make computers and satellites, to generate electricity, and to provide the many other goods and services that consumers enjoy. In addition, mining is economically important to producing regions and countries.	https://www.opinionstage.com/p...	null
2023-11-19 07:56:13	Minimize the use of gold.	https://www.opinionstage.com/p...	null
2023-11-19 07:55:14	Reduce the usage of gold	https://www.opinionstage.com/p...	null
2023-11-19 07:52:57	I am not interested	https://www.opinionstage.com/p...	null
2023-11-19 07:42:25	Avoid using gold	https://www.opinionstage.com/p...	null
2023-11-19 07:37:24	Gold can be used by government only for controlling economy	https://www.opinionstage.com/p...	null
2023-11-19 07:08:43	No	https://www.opinionstage.com/p...	null
2023-11-19 07:08:42	I am not sure about this.	https://www.opinionstage.com/p...	null
2023-11-19 07:07:06	No idea	https://www.opinionstage.com/p...	null
2023-11-19 07:04:54	No recommendations	https://www.opinionstage.com/p...	null
2023-11-19 07:00:08	Good	https://www.opinionstage.com/p...	null
2023-11-19 06:56:28	Mining saves nature and in the future it will be good for sustainable development	https://www.opinionstage.com/p...	null
2023-11-19 06:46:28	No	https://www.opinionstage.com/p...	null
2023-11-19 06:43:58	Long-lasting equipments made of gold reduces periodic waste generation	https://www.opinionstage.com/p...	null
2023-11-19 06:41:03	Better equipments at affordable rate if gold usage as jewellery can be reduced	https://www.opinionstage.com/p...	null
2023-11-19 06:40:22	No comments	https://www.opinionstage.com/p...	null
2023-11-19 06:38:50	No idea	https://www.opinionstage.com/p...	null
2023-11-19 06:38:36	Good	https://www.opinionstage.com/p...	null
2023-11-19 06:37:41	Do not mine golds !	https://www.opinionstage.com/p...	null
2023-11-19 06:34:33	Hi	https://www.opinionstage.com/p...	null

Total answers : 25

Fig 26: Recommendations received from participants.

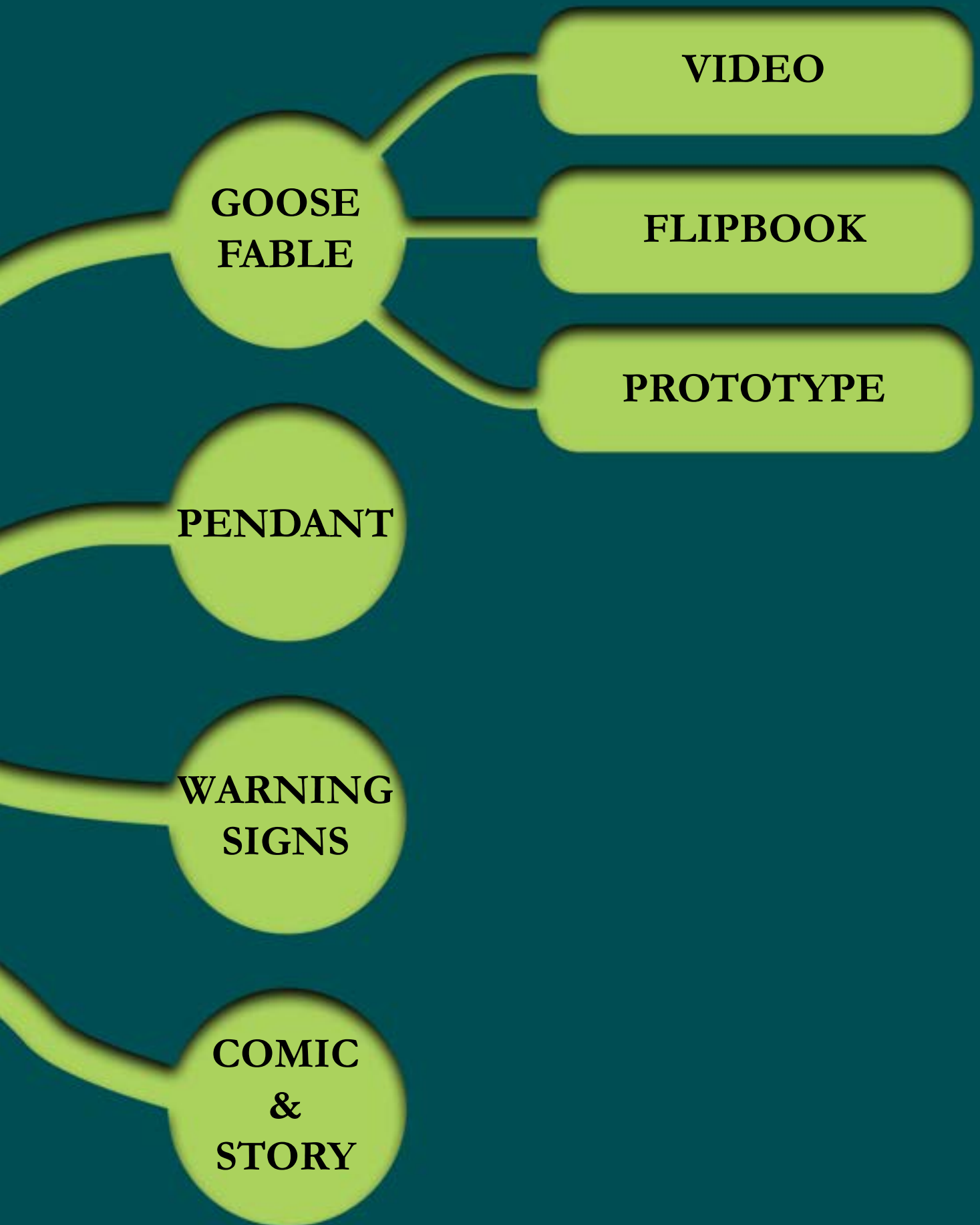




MY PROJECT



INITIAL CONCEPTS





GOOSE FABLE

I used the allegory of the goose that lays golden eggs to represent the repercussions of human avarice, namely in the quest for wealth in the form of gold.

The model (fig.28) clearly conveys the intricate relationship between human aspirations, environmental exploitation, and the repercussions of uncontrolled greed via the depiction of a geese laying golden eggs, a hand clutching an eye of greed, and symbolic symbols of nature and resources. The goose signifies the Earth's ability to produce precious resources, but the hand of greed symbolises the insatiable want for money, specifically in relation to gold. The golden egg symbolises the intrinsic worth of nature's gifts, comparable to the limited availability of commodities such as gold. The use of visual storytelling has the potential to enhance public consciousness about environmental concerns and stimulate a thoughtful analysis of society's decisions in the pursuit of affluence and success.

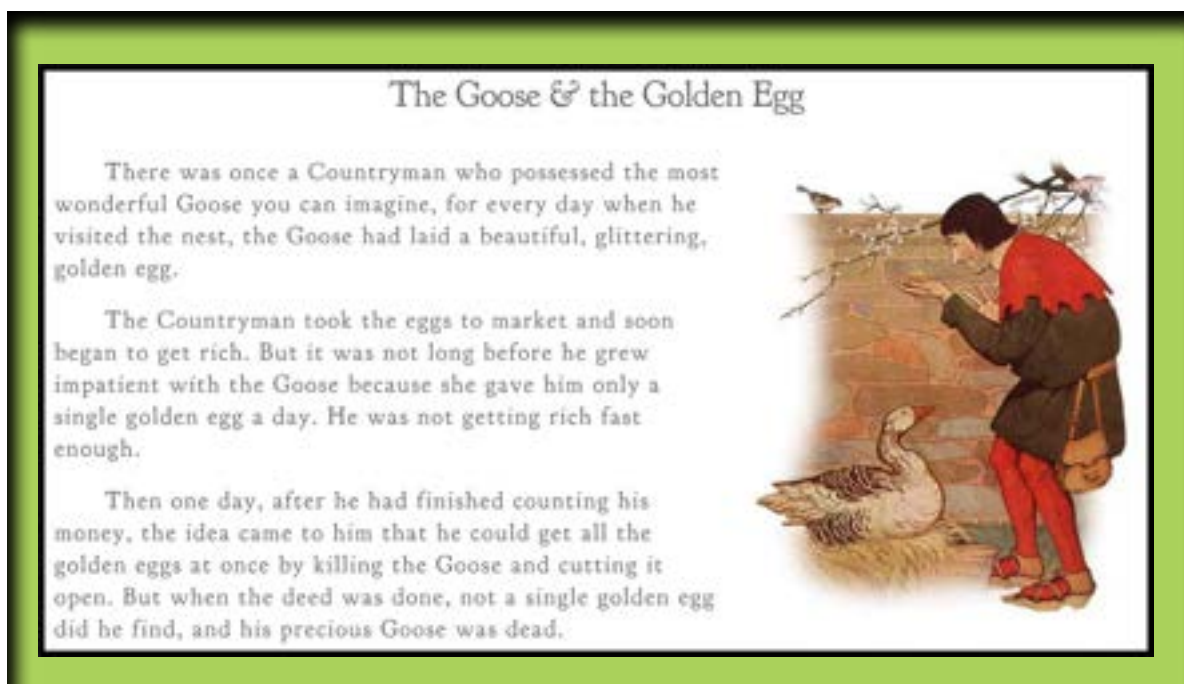


Fig 27: The goose fable (*The Goose & the Golden Egg*. Library of Congress Aesop Fables, n.d.)



Fig 28: The model of goose and greedy eye (rendered image)



METHODS USED

LASER CUTTING



+

=

3D PRINTING





Fig 29: The model I made.



VIDEO

The film, drawing inspiration from the goose's story, depicts the adverse consequences of environmental exploitation and the possibility of good change via ethical conduct. The act of beheading the goose by a human using a sword and fire serves as a stark illustration of the detrimental impact of human acts. The scenery is converted into a polluted natural environment, emphasising the swift consequences of ecological harm. The kid figure symbolises the next generations and their inheritance of the planet. The child's emotional reaction to the goose's state represents sorrow and unease, but the repair of the goose's head and background turns it into a beautiful natural scene, symbolising the possibility of revitalization and rebirth.





Fig 30: Video starting and ending scenes.

Scan the QR code to watch the video





FLIPBOOK & PROTOTYPE

The flipbook portrays gold mining's environmental impact through a goose, disrupted by human activity. It highlights recovery and ecosystem rejuvenation, encouraging viewers to adopt sustainable methods and consider consequences for a peaceful cohabitation with nature.

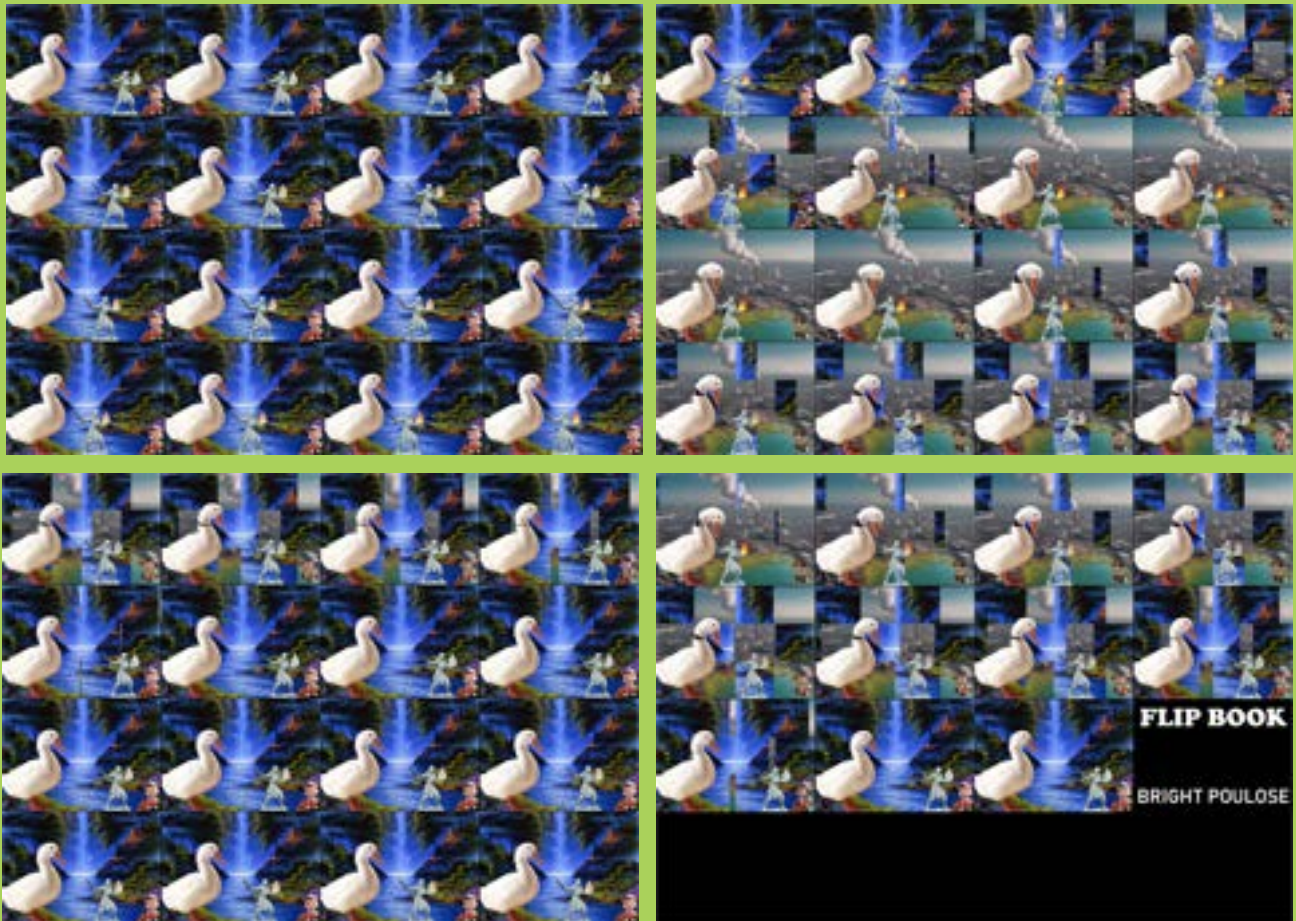
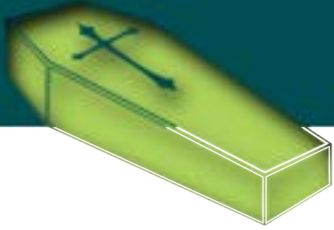


Fig 31: Flipbook pages



Fig 32: Prototype (rendered image)

The prototype design effectively portrays the negative effects of environmental exploitation and the potential for positive change through conscientious actions. It features a severed goose's head and a contaminated backdrop, symbolizing the cause-and-effect relationship between human activities.



PENDANT

The necklace, like a coffin, serves as a representation of the ecological consequences associated with gold mining. The opulence and value of gold are evident in its sombre aspect, but a flower represents the resilience of nature. The pendant's design accentuates the ramifications of gold mining, including loss, anguish, and environmental devastation. The shape of the coffin also signifies the possibility for permanent harm to ecosystems and biodiversity. The pendant's portability enables the wearer to convey the message, fostering awareness and perhaps instigating conversations on the ethical ramifications of gold mining.

TRANSITIONING FROM FLOWER TO EARTH:

The original design featuring a flower presumably represented the aesthetic appeal and vitality often associated with the natural world. By converting the interior to symbolise the Earth, established a clear connection between the consequences of gold mining and the overall well-being of the planet. The Earth represents the encompassing biosphere, which supports life and demonstrates the interdependence of all organisms.



Fig 33: Pendant (initial idea)



Fig 34: Pendant (final model)



WARNING SIGNS

Warning labels in Australia and Canada serve as effective incentives for smokers to stop by informing them about health hazards and offering support for smoking cessation. (O'Hegarty et al., 2006)



Fig 35: Warning signs seen on cigarette packets (Gillies, 2023)

Warning signs on gold jewellery might confront customers with the reality of gold and encourage them to reassess its concealed expenses. This method has the ability to convert a typical high-end item into a platform for promoting environmental and ethical awareness, which might perhaps result in a decrease in the use of gold ornaments. An efficient means of conveying this message is by the incorporation of a distinctive warning insignia in the design of a shoe, including the inscription “stop mining, save nature.” The shoe design goes beyond aesthetics, showcasing how intentional design choices may help to a collective endeavour to protect and preserve natural resources. The objective is to promote a broader movement towards ecological awareness and sustainable living via this novel fusion of fashion and activism.



Fig 36: Warning sign (initial idea)



Fig 37: Shoe model with message on it's sole.



I artistically converted the uneven boundary around the inscription on the shoe's sole into the recognisable form of a lunette, evoking the enduring and sacred outlines often seen in cemeteries. The intentional transformation acts as a powerful symbol, effectively communicating the deep meaning and grave concern of the underlying message, asking us to protect the environment.



COMIC & STORY

COMIC BOOK

I developed a comic book, titled “Gold, the poo of Golmer,” which seeks to educate youngsters on the ecological consequences of gold mining. The narrative employs wit and anthropomorphism to portray the adverse attributes of gold, so cultivating awareness of its possible detriments. Targeting children strategically allows for the presentation of complicated environmental concerns in a way that is easily understood and accessible. Ensuring a careful equilibrium between the message and its possible repercussions is vital in promoting responsible consumption and informed decision-making.

This comic book was produced with the use of the Pixton app ([https:// app.pixton.com/#/](https://app.pixton.com/#/)) and Photoshop software.



Fig 38: Cover page of the comic book.



The comic employs characters such as Golmer, Jewel, Bullioner, and Euno to captivate readers and embody the ecological ramifications of gold mining. Golmer, signifies destructive inclinations, whilst Euno embodies environmental protection. These characters facilitate comprehension among young readers on the practical consequences of mining and motivate them to engage in constructive acts, nurturing a feeling of empowerment and accountability.

Golmer acts as an abbreviation for the term gold miner.



Fig 39: Golmer

The Greek name Euno means “intellect” and is used for boys. According to numerology, Euno is a pioneer, a natural leader, an entrepreneur, an innovator, an energetic, optimistic, courageous, and self-confident person with a strong sense of direction and purpose. (*Euno name meaning, about Greek boy name Euno , n.d*)

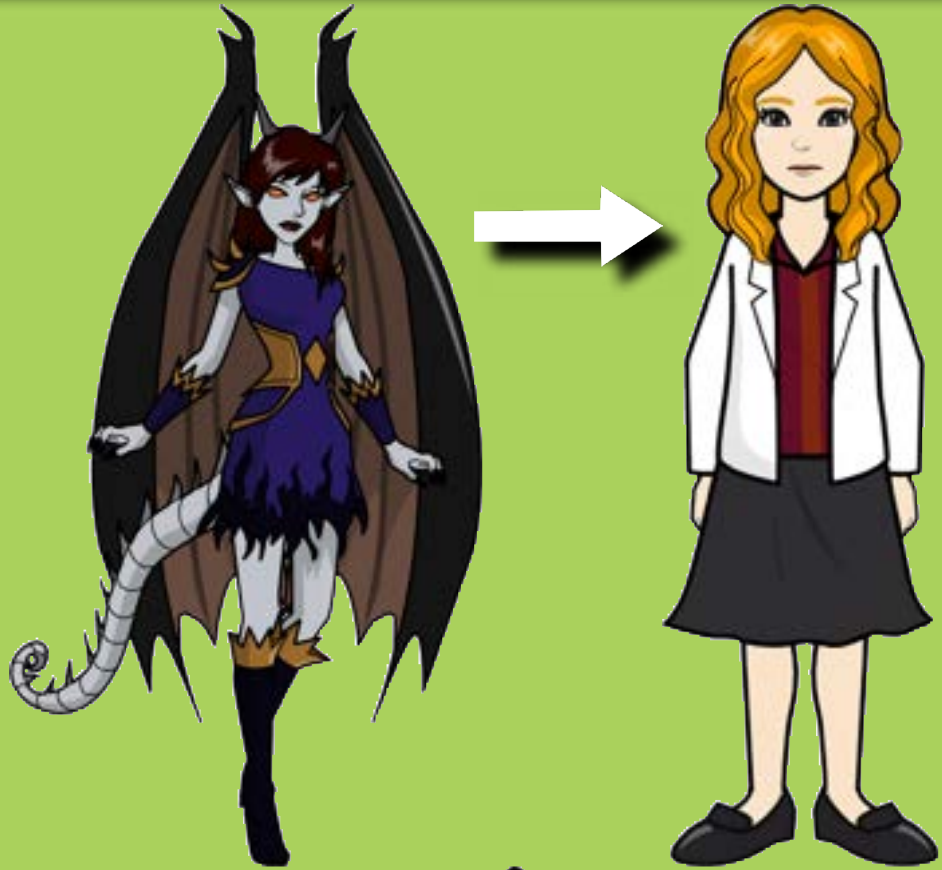


Fig 40: Euno



The comic book delves into the ramifications of gold mining, whereby the characters Jewel and Bullioner symbolise the realms of jewellery and bullion, respectively. They undergo a transformation into doctor and technician, emphasising the capacity for favourable alterations in the utilisation of gold. The narrative imparts knowledge to youngsters on environmental concerns and advocates for conscientious consumption. The transition of Jewel and Bullioner into sustainable occupations promotes social reassessment and the adoption of sustainable methodologies. The primary objective of the comic book is to provide knowledge to youngsters about the process of gold mining while simultaneously motivating them to become advocates for the environment.

Transformation of Jewel into a doctor.



Transformation of Bullioner into a technician.

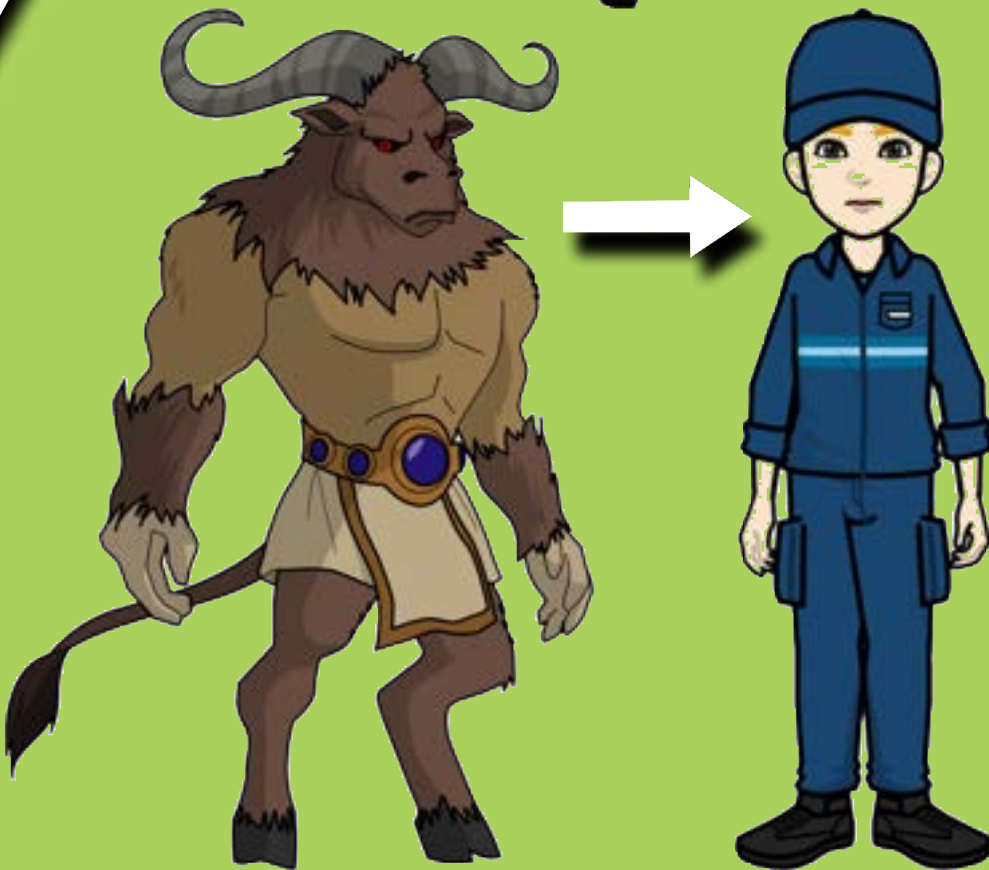


Fig 41: Transformations of Bullion & Jewel.



Fig 42: Comic book pages



Fig 43: Utilise the QR code to access and peruse the whole comic:



STORY



Defeat of the Golden Dragon



A long time ago, in a magical land, there was a beautiful forest called Greenwood. Two guardians of heaven, bright angels named Euno and Dimitra, watched over this magical forest. They kept an eye on the delicate balance of nature and made sure that evil forces didn't mess up the peace of Greenwood.

But one terrible day, two wizards called Bullion and Jewel came into Greenwood. They were hungry for gold and couldn't stop. They had bad motives when they tried to get the valuable metal that was buried under the roots of the old trees. The evil magicians' dark magic was too strong for the heavenly guards to handle, leaving Euno and Dimitra helpless.

When the angels realised how weak they were, they chose to ask for help from the nearby human villages. Euno and Dimitra flew through the mist that separated their world from ours and appeared before the village leaders. Their airy presence drew everyone's attention.

Euno begged the "great guardians of Greenwood," "please help us right away." Her voice was like a calming song. She talked about how the greedy wizards were going to ruin both the forest and the natural balance.

The ordinary people, on the other hand, were too interested in the witches' charm and the offers of wealth to listen to the angels. "We have no interest in the affairs of magical realms," the village leader said, ignoring the warnings from the celestial beings.

Back in Greenwood, Bullion and Jewel kept up their damaging chase, recklessly digging for gold. The once-bustling forest started to die as the trees withered, and the magical beings ran away, leaving the land empty.

As the people watched the destruction, they felt heavy with guilt and sorrow. As they saw how their lack of care had affected many people, they came to realise what they had been doing. The wizard's greed also hurt the town, which used to be very successful. Crops failed and water sources became polluted.

A group of people, led by Nikolaos, a young and caring farmer, felt like they had a new sense of duty and chose to go up against the wizards and make things right. They asked the now-weaker angels for help, and even though their skills were weaker, they taught the humans how to fight dark magic.

With this new knowledge, the locals set out on a brave journey into Greenwood. Bullion and Jewel, who didn't want to give up their stolen goods, fused together and became a giant golden dragon and fought the humans in a fierce fight. The locals' drive gave the natural forces the power to rise up against the magic.

The wizards were beaten in the final battle, and the angels' powers were returned. Now that the locals knew how much gold digging really cost, they helped Euno and Dimitra heal Greenwood. They planted new trees, cleaned up the polluted water, and promised to keep the delicate balance between people and nature.

The locals who had not cared about the magical forest became its guardians, making sure that the story of Greenwood would always serve as a warning about the terrible effects of uncontrolled greed on the web of life. People all over the world were moved by the story and promised to be careful on Earth and protect nature for future generations.



I wrote a story which explains impacts of gold mining in an imaginary magical forest called Greenwood. The Greenwood tale is a compelling examination of environmental stewardship, emphasising the dynamic relationship between people and nature. The narrative serves as a prime illustration of the repercussions of human actions on the environment, including the degradation of forests, unproductive crop yields, and the pollution of water sources. The villagers' negligence towards the angels' admonitions underscores the perils of ignorance and avarice, underscoring the need of comprehending the repercussions of their deeds. The tale also underscores the need of cohesion and shared accountability, as the villagers, under the leadership of Nikolaos, collaborate to rectify the errors made by the whole community. The significance of collecting and interacting with various entities is underscored, highlighting the potency of knowledge and teamwork. The tale also emphasises the repercussions of avarice, implying that individuals who contribute to the degradation of the ecosystem may nevertheless play a substantial role in its repair and rejuvenation. The story also advocates for global accountability, highlighting the significance of choices made by individuals and collectives on a global scale.



AN STUDY CONDUCTED AMONG YOUNG INDIVIDUALS

disclosed that the captivating narrative of Greenwood struck a profound chord with them. The narrative, which portrays an enchanted realm and the struggle against avarice, enthralled their minds. The enduring concept of environmental preservation deeply connected with them, stimulating contemplation on the repercussions of uncontrolled human activities on the natural world. The poll findings indicated that the narrative successfully communicated its message on the detrimental consequences of unregulated avarice on the interconnectedness of ecosystems, instilling a heightened consciousness and obligation towards the environment for subsequent generations. The narrative successfully surpassed its lovely backdrop to underscore the need of preserving the environment.

Responses Report (12)

Submission Time	Your name?	your age?	After reading the story, what was the message you got?
2023-12-10 00:35:24	Felix Raigon M	17	Love nature
2023-12-08 07:55:11	Litty KP	13	To care the nature for the next generations.
2023-12-08 05:06:12	Aniceta sabu	15	We should protect the nature
2023-12-08 02:54:34	Baby	17	Protect Nature
2023-12-08 02:34:16	Brefin	18	A man's delusion of gold will blind his eyes.
2023-12-07 20:12:58	CIGI PAUL	13	Careful on earth and protect nature for future generations.
2023-12-07 18:26:19	Mesmin Joy	13	Interesting story
2023-12-07 18:25:16	Mishal Joy	18	Good story
2023-12-07 17:58:24	Paulse Jose	13	The Message is, one should conserve and protect Nature.
2023-12-07 16:46:20	Aan Fernandez	12	We must care and protect the nature

Fig 44: Survey responses.

DRAWBACKS

Upon careful consideration of the initial concepts, it becomes clear that each proposal has distinct advantages, but also encountered significant limitations that impeded the successful communication of the desired message.

GOOSE FABLE (PROTOTYPE, VIDEO, AND FLIPBOOK):

Elucidation dependency: The concept encountered difficulty in effectively communicating its meaning without the need for further clarification. In order to address this issue, the inclusion of visual signals or symbols that more accurately depict nature, resources, and their depletion might enhance the comprehensibility of the message, hence minimising the need for further explanation.

Sensitivity Issues: The act of beheading the goose, particularly when considering a children's audience, raises concerns with sensitivity. A change might include finding a figurative or less explicit portrayal of the depletion of natural resources that preserves the desired effect without inducing unease.

PENDANT:

Wearable Aversion: The concept of a necklace fashioned like a coffin, however symbolic, may not be universally accepted owing to its link with morbidity.

WARNING SIGNS:

The shoe, which has an outsole that shows a message, faces practical limitations in terms of visibility, especially in urban areas and indoor spaces. The message was exclusively transmitted on natural terrains, including sandy beaches, unpaved trails, and earthen surfaces.

COMIC:

Visual Explanation Challenge: Just like the Goose Fable, the comic format encountered obstacles in effectively presenting the concept without external help.

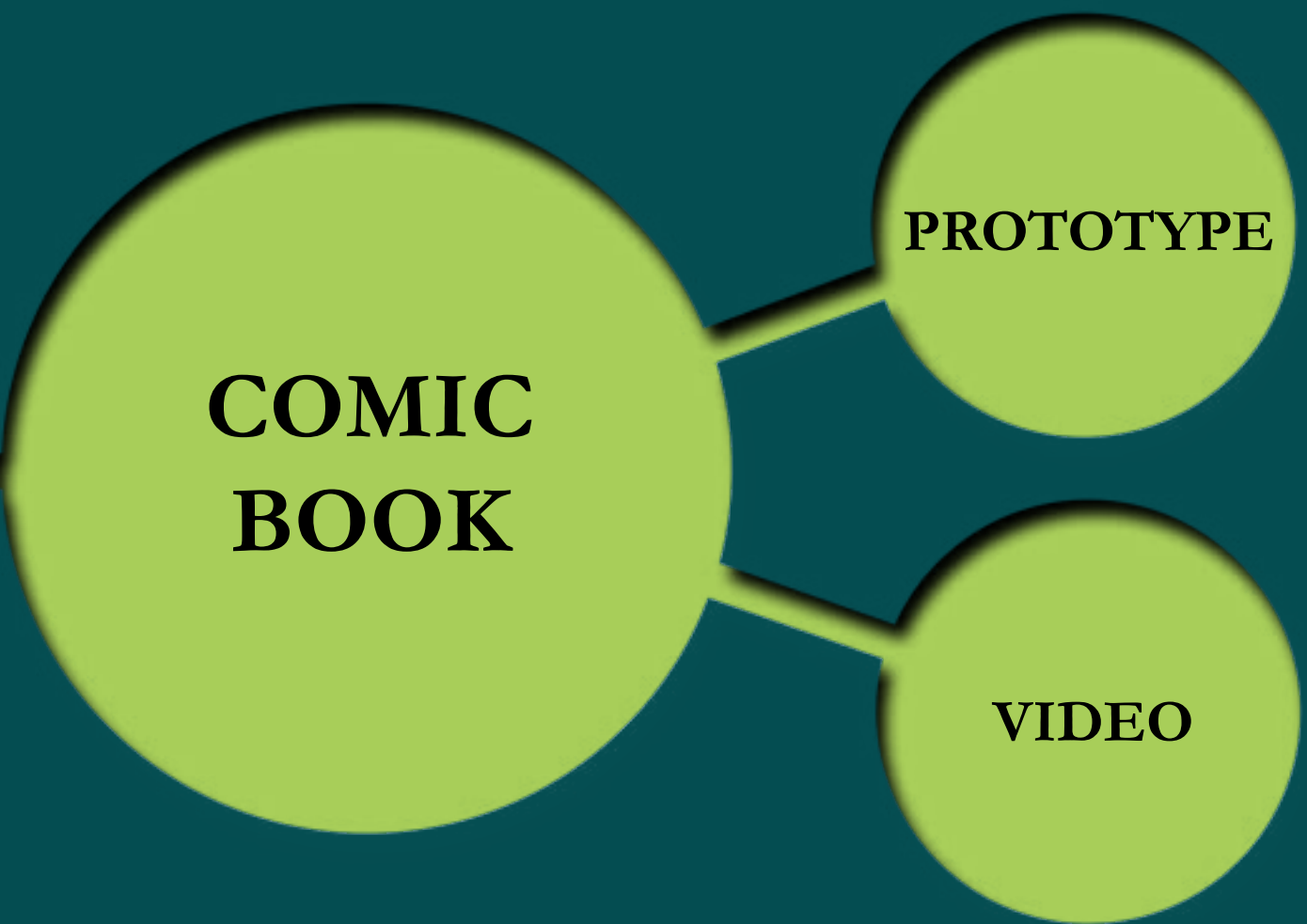
THE STORY:

Visual unattractiveness: The story's reliance on words made it difficult to captivate the audience. By using visually attractive components, such as pictures or infographics, the tale may be transformed into a more visually appealing style without compromising its narrative integrity.

When refining anything, it is crucial to prioritise the qualities of being clear and accessible, while yet maintaining the central idea. By rectifying these limitations via deliberate design alterations and innovative adaptations, each proposal has the potential to transform into a more influential medium for conveying the crucial message of environmental preservation.



FINAL CONCEPT



COMIC BOOK

GILDED SHADOWS: UNEARTHING THE PRICE OF GOLD

I choose to create a comic book (**gilded shadows: unearthing the price of gold**) based on the story (page no.68) and including the pendant and shoe from my initial concepts. The comic's narrative technique enthralled the audience by integrating characters Golmer, Bullioner, and Jewel, together with illustrations of the necklace and shoe. The pendant's symbolic depiction was subtly included, enabling the viewer to comprehend its meaning within the story. The shoe's impression was also well designed, enabling creative freedom in depicting its impact on various environments. The comic's visual structure appeals to a more immersive and user-friendly medium, enhancing engagement for those who may find conventional storylines less interesting. The visual clues, emotions, and symbolic representations in the comic medium serve as a global language, minimising the need for external clarification and fostering a more profound connection with the environmental message. The comic successfully combines the pendant and shoe ideas, creating a fascinating and visually impressive message that connects with a diverse audience.

The comic begins by introducing two celestial guardians, Euno and Dimitra, who have been given the responsibility of safeguarding the mystical Greenwood. The enchanting woodland, abundant and teeming with biodiversity, represents the intricate equilibrium of the natural world. The tranquil state of Greenwood is suddenly disturbed by the arrival of two malicious sorcerers, Bullion and Jewel, who possess an insatiable desire for the forest's concealed wealth – gold.



Fig 45: Cover page of the comic book



Fig 46: Entry of Bullion and Jewel into Greenwood.

Upon entering Greenwood, Bullion and Jewel proceed with their nefarious plans by conjuring Golmers (enigmatic beings that bear a striking resemblance to gold miners but possess grotesque features). Under the guidance of the mages, the Golmers commence a relentless excavation of gold from the core of the enchanted forest. The visually impressive depictions of Golmers involved in mining directly symbolise the actual gold mining sector, establishing a clear connection between the fictional story and the environmental concerns being addressed.



Fig 47: Golmer (I used outfit of miners to symbolise the realworld gold mining.)

The storyline takes a poignant shift as the comic diligently portrays the consequences of the gold mining operations. The formerly lively Greenwood is now deteriorating and decaying, reflecting the environmental decline resulting from unrestricted gold mining in the real world. The visual narrative effectively conveys the environmental message by evoking a tangible sense of the impact on nature through transformative images of the decaying forest, eliminating the necessity for intricate explanations.

Concurrently, the comic depicts the human aspect of the narrative. The denizens of Greenwood, mystical creatures who previously thrived in symbiosis with their environment, are compelled to evacuate their abode due to the deleterious effects of gold mining. The narrative broadens to include human settlements beyond Greenwood, unveiling the interdependence between nature and human existence. The failure of crops, contamination of water sources, and the resulting hardships faced by communities reflect the tangible outcomes of environmentally detrimental practices.



Fig 48: Impacts of gold mining (scenes from comic)

The visual depiction of Bullion and Jewel functions as a symbolic critique of the societal functions of precious metals and gemstones. Their actions, motivated by the quest for luxury, exhibit a clear correlation with the adverse effects of gold mining on both the environment and human welfare. The comic cleverly employs these imaginative characters to effectively communicate a profound message regarding the repercussions of uncontrolled avarice and the pressing necessity for ecological preservation.



Fig 49: Bullion and Jewel wearing the coffin-pendants on their ornaments.

Amidst the ongoing environmental crisis, the debilitated celestial guardians, Euno and Dimitra, earnestly implore the nearby human villages for assistance. The comic astutely encapsulates the core of this plea, highlighting the significance of human intervention in preserving the fragile equilibrium of nature. The call to action is smoothly incorporated into the narrative, compelling readers to contemplate the practical consequences of their choices and behaviours.



Throughout the narrative, a cohort of empathetic individuals, under the guidance of a leader named Nikolaos, emerges to confront the malevolent forces. The celestial beings share their knowledge with these newly discovered allies. The imagery of the group embarking on a courageous expedition into Greenwood, confronting Bullion, Jewel, and a colossal dragon, portrays the collaborative endeavour necessary to confront the detrimental consequences of unchecked avarice.

The comic's resolution serves as evidence of the capacity for constructive transformation. The wizards' defeat and the cooperation between the locals and celestial beings exemplify the potential for redemption and healing. The residents actively engaging in the revitalization of Greenwood, represented by the act of planting fresh foliage, purifying contaminated water, and pledging to uphold the fragile equilibrium between mankind and the environment.

Humans design shoes as a symbolic manifestation of their dedication to the preservation of the environment. The soles of the shoes display the inscription "Stop Mining, Save Nature," symbolising the knowledge acquired from the distressing encounters in Greenwood. The transfer of these shoes to future generations is a solemn ritual, delegating the duty of safeguarding the environment to those who come after. The visual representation of this intergenerational transfer evokes a sense of continuity and heritage as the older generation eagerly anticipates the younger generation. The shoes act as a concrete connection to the knowledge acquired in Greenwood, guaranteeing that the insights gained in the enchanted forest resonate throughout history.



Fig 50: Nikolaos hand overing the shoes to his daughter.



Fig 51: The shoe model developed from initial concept of warning signs. I replaced the initial design patterns with the characters in the comic book.





Fig 52: Shoe sole with the message (stop mining save nature).

HOW TO SPREAD THIS MESSAGE GLOBALLY?

I use Amazon Kindle as a platform to distribute and make available for purchase my literary work, titled “Gilded Shadows: Unearthing the Price of Gold.” The platform overcomes geographical limitations, providing access to a wide-ranging audience and cultivating a feeling of communal belonging. The book’s effect on the global conversations is heightened by its accessibility.

Product details

ASIN : B0CS6QT5VC

Publisher : Independently published (6 Jan. 2024)

Language : English

Paperback : 44 pages

ISBN-13 : 979-8874185527

Reading age : 10 - 18 years

Dimensions : 21.59 x 0.28 x 15.24 cm

GILDED SHADOWS: UNEARTHING THE PRICE OF GOLD

Paperback – 6 Jan. 2024

by Bright Poulse (Author)

[See all formats and editions](#)



The comic book, titled “GILDED SHADOWS: UNEARTHING THE PRICE OF GOLD,” seeks to educate youngsters on the ecological consequences of gold mining. The narrative employs wit and anthropomorphism to portray the adverse attributes of gold, so cultivating awareness of its possible detriments.

[Report an issue with this product](#)

Reading age



10 - 18 years

Print length



44 pages

Language



English

Dimensions



21.59 x 0.28 x
15.24 cm

Publication date



6 Jan. 2024

Fig 53: The book details on Amazon (*Gilded shadows: Unearthing the price of gold: Amazon.co.uk: Poulse, bright: 9798874185527: Books , n.d*)



amazonkindle



VIDEO

When people watch the video, they are taken to Greenwood, where they meet Euno, Dimitra, Bullion, Jewel and Golmers, the real-life gold miners. The video captures the story's most important parts, making the whole experience better. Using the same story in both comics and videos maximises the project's impact, reaching people all over the world and encouraging them to become aware and take action. The movie goes well with the comic because it uses mixed-media storytelling, sound, and pictures.

The audio used in the comic video was created using the website called "tts maker" (https://ttsmaker.com/#google_vignette).



Fig 54: A scene from the video.

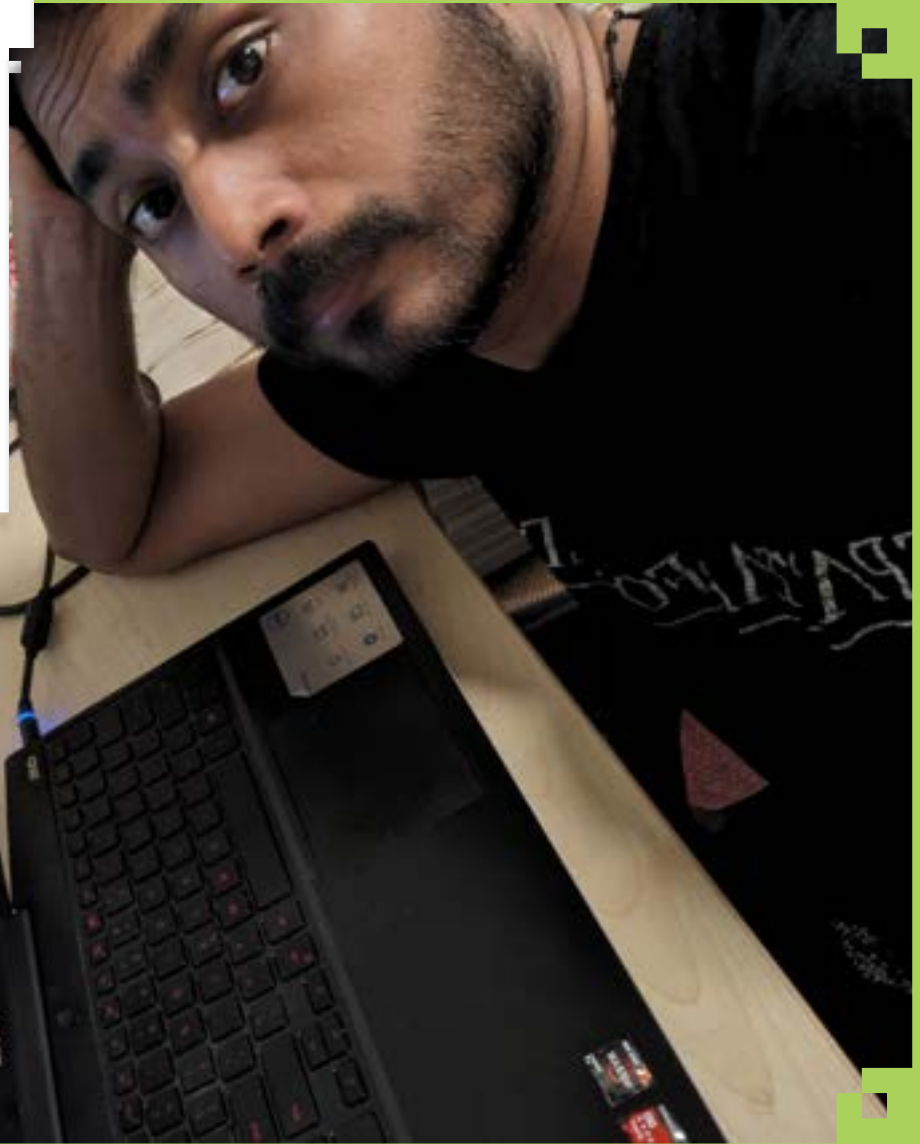
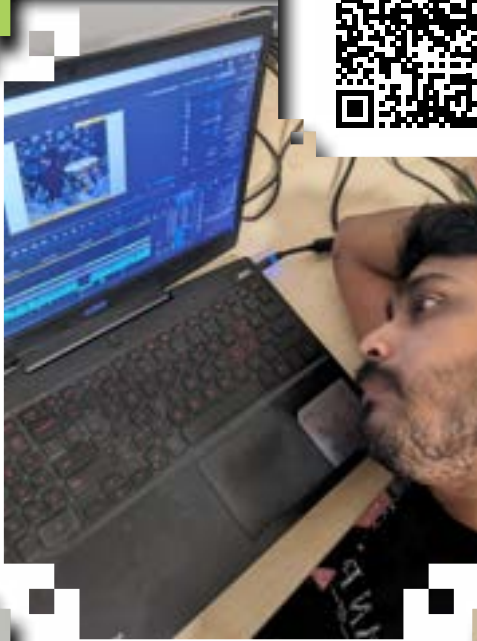
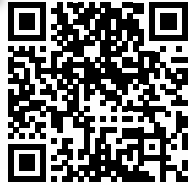


Fig 55: Selfie time during the making of video. Scan the QR code to watch the video.

PROTOTYPE

The prototype is an essential component of the project, serving as a tangible and interactive manifestation of the story's most dramatic scenes. Users may directly experience the concluding events depicted in both the comic and film. The prototype represents the triumph against Bullion and Jewel and the rejuvenation of nature, serving as a prominent and compelling element in the whole project. The prototype is precisely designed, with careful consideration given to every aspect, in order to depict the exact spirit of the final battle against the forces of avarice. The prototype serves as a clear and compelling example of the restoration of nature, which is a fundamental subject in the tale. It acts as a mediator between the abstract and the concrete, allowing consumers to build a concrete relationship with the storyline.



Fig 56: Prototype (first attempt)

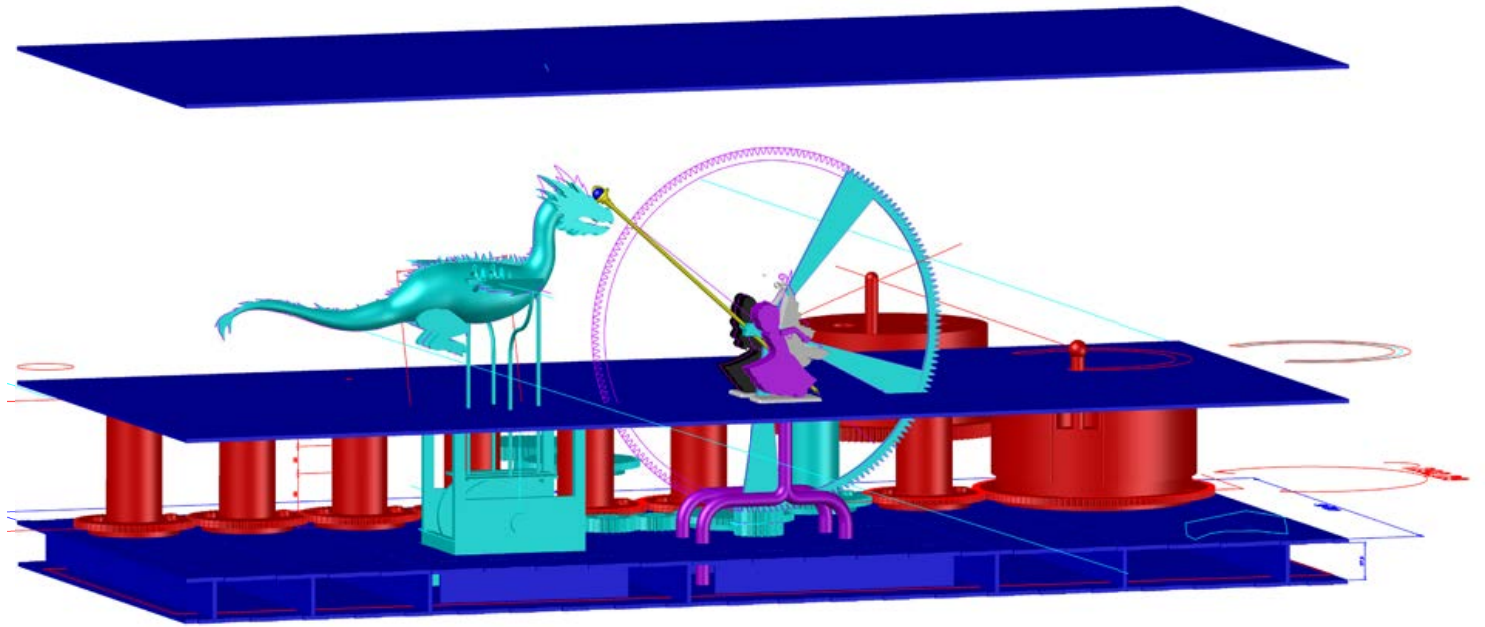


Fig 57: First concept of the prototype (AutoCAD drawing)

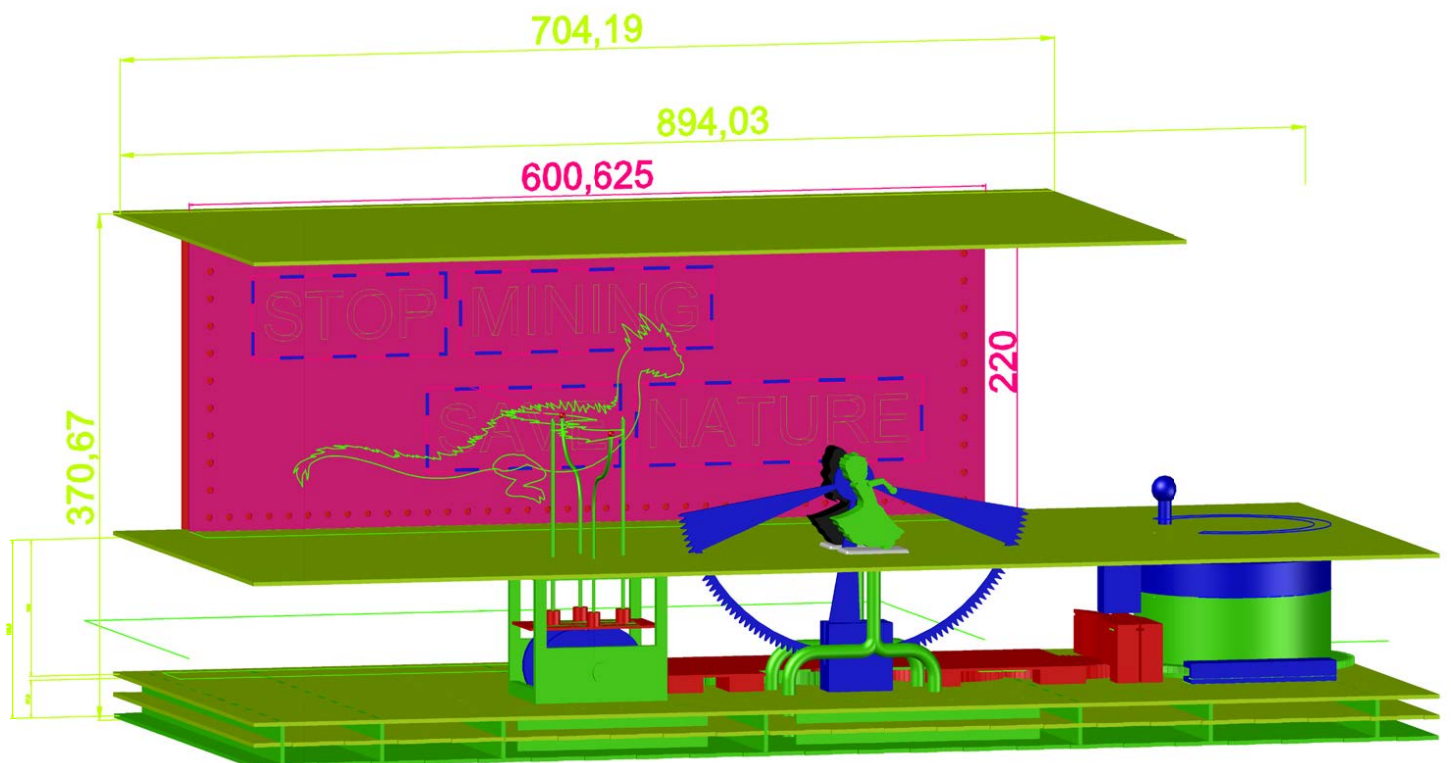


Fig 58: Final concept of the prototype (AutoCAD drawing)

MAKING



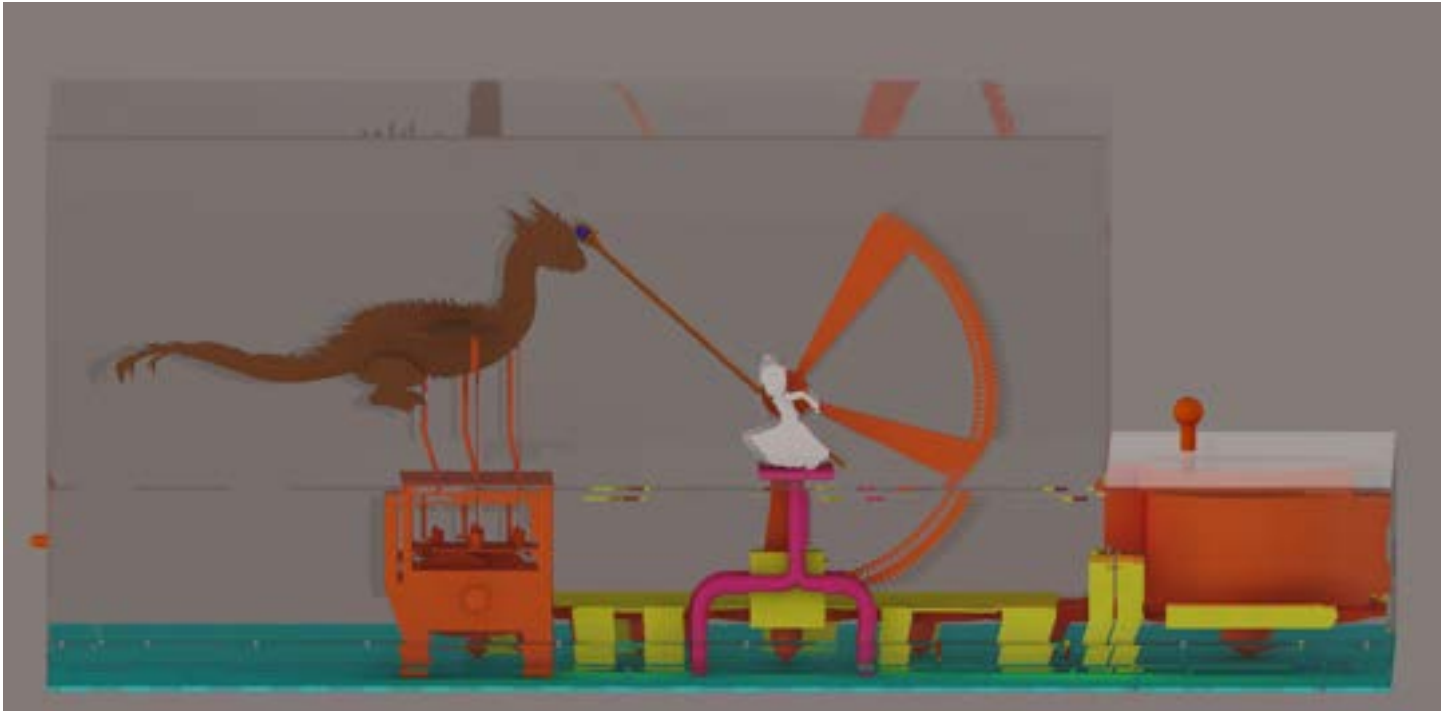


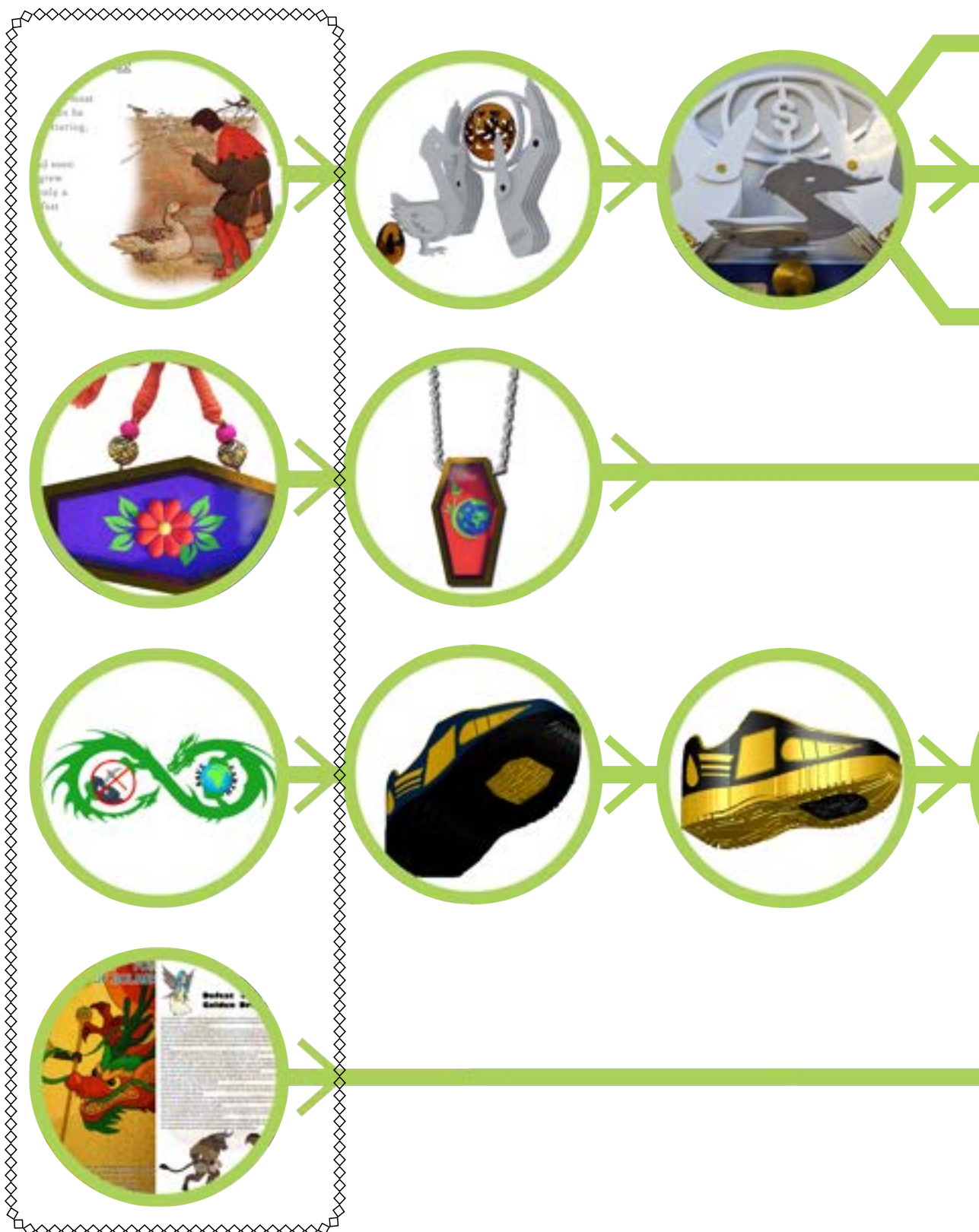
Fig 59: *Final model (rendered)*



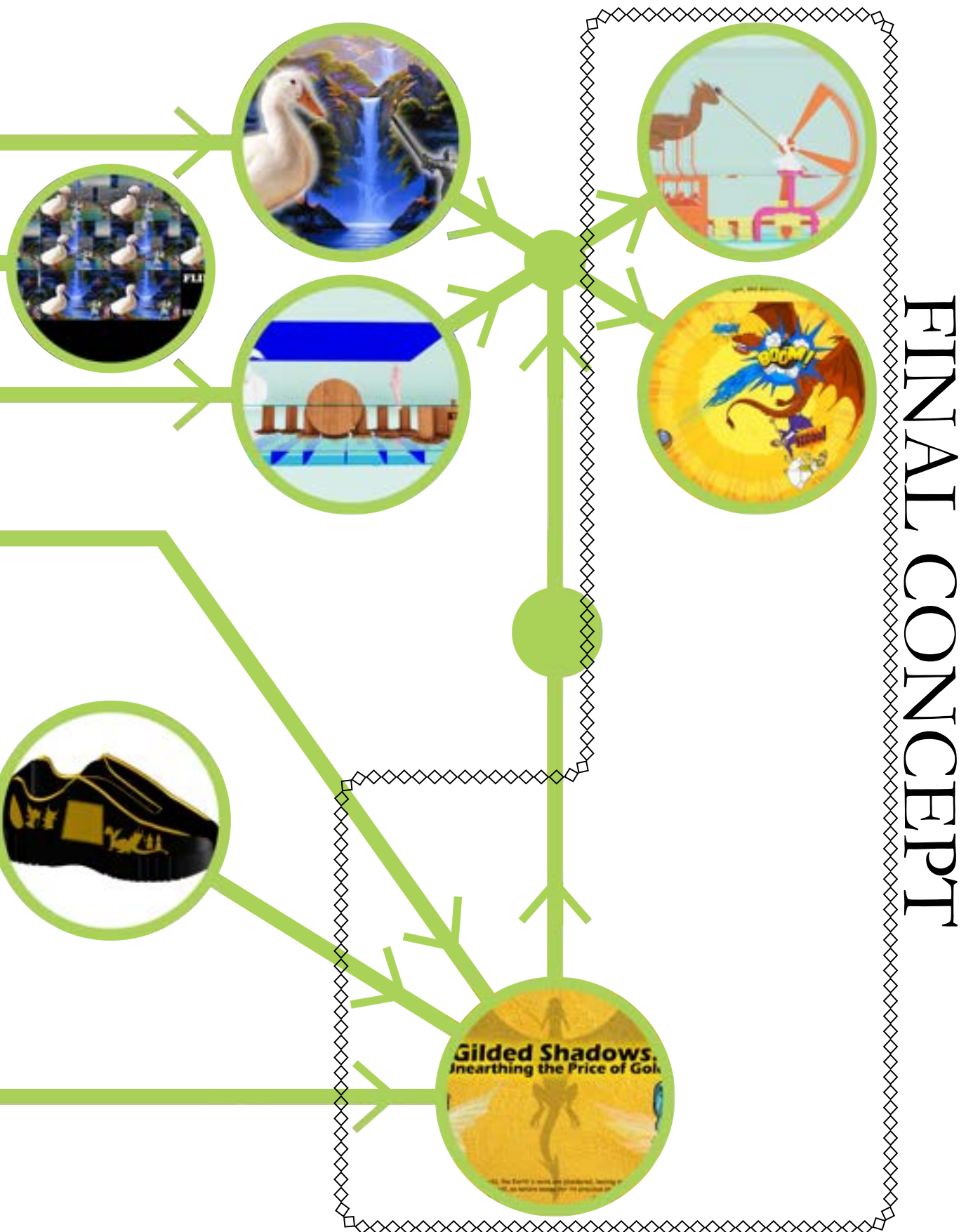
Fig 60: *Final model*

DESIGN D

INITIAL CONCEPTS



DEVELOPMENT



CONCLUSION

To summarise, the effects of gold mining on people and the environment are being looked at in this project. The goal is to use a comic book to show how important it is to protect the earth. The Golden Survey was used to find out what people thought about the issue and raise knowledge about how gold mining affects the environment. By using pendants, shoes, and representations like Golmers from the initial ideas, the comic book did a good job of getting its point across. The complicated story was told clearly through graphic storytelling, without needing a lot of description. The prototype and film added to the picture and made it better for a lot of different learning styles. The project wants to have an effect on people all over the world by starting conversations, raising awareness, and encouraging people to work together. It does more than just look at how gold mining affects the environment; it also makes a plea for action by using stories, imagination, and different ways of communicating.





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