



THE WRONG GODS

By **S. Shakthidharan**

Directed by

Hannah Goodwin & S. Shakthidharan

03 MAY - 01 JUN

THE WRONG GODS

BY S. SHAKTHIDHARAN | 3 MAY - 1 JUNE 2025

We are thrilled to introduce to you *The Wrong Gods*, a new play by S. Shakthidharan, directed by Hannah Goodwin.

In a valley in India, paintings on a cave wall bear testimony to the presence of people - and their gods - for fifty thousand years. Close by, Nirmala farms the soil as her ancestors did, but her daughter Isha wants something more - a city education, and the opportunity it promises. And there are outsiders in the valley now, bringing new crops, new technologies, new visions of the future. There are new gods loose in the valley. But they are asking Nirmala and her people to pay a heavy price. A gripping new play from S. Shakthidharan (*Counting and Cracking*, *The Jungle and the Sea*) co-directed by Hannah Goodwin (*The Curious Incident of the Dog in the Night-Time*, *Never Closer*), *The Wrong Gods* melds mother-and-daughter struggle with the economics of progress, asking, what are we worshipping? And what price will we pay?

These learning resources include four 1-hour lesson sequences designed for students and teachers undertaking Stage 6 Geography in NSW. Developed to enhance their experience of watching *The Wrong Gods*, these resources also support classroom learning on key geographical concepts, including human impacts on environmental processes and the political dynamics of progress that shape rural-urban migration and climate displacement.

NSW CURRICULUM LINKS

These **Learning Sequences** have been created by Belvoir Education to support teachers in their instruction of:

GE-11-01 examines places, environments and natural and human phenomena, for their characteristics, spatial patterns, interactions and change over time

GE-11-02 explains geographical processes and influences at a range of scales that form and transform places and environments

GE-11-06 identifies geographical methods used in geographical inquiry and their relevance in the contemporary world

GE-11-07 applies geographical inquiry skills and tools, including spatial technologies, fieldwork, and ethical practices, to investigate places and environments



CONTENTS

CURRICULUM LINKS 2

Learning Sequence 1: The Progress Trap 4

Learning Sequence 2: Big Dams 7

Learning Sequence 3: Arunhati Roy 8

Learning Sequence 4: After The Mines - Case Study 12

WORKSHEETS 16

LEARNING SEQUENCE 1: THE PROGRESS TRAP

PRINT COPIES OF WORKSHEET 1.1

A) GROUP DISCUSSION (10 MINS)

To begin this unit of work, conduct a group discussion with your class by asking students the following questions:

- What are some of the biggest environmental challenges of the 21st century?
- What do you think our responsibility is toward the planet?
- Do we have any moral responsibility to help people in different countries and cultures?
- How important is progress?



IMAGE SOURCE: [HTTPS://THENARWHAL.CA/](https://thenarwhal.ca/)

B) READING - WORKSHEET 1.1 (10 MINS)

WHAT IS THE 'PROGRESS TRAP'?

Humanity's journey through history is marked by incredible achievements and advancements. From mastering fire to exploring distant galaxies, our capacity for innovation seems boundless. Yet, woven into this narrative of progress lies a cautionary tale — ***the progress trap***. It ensnares societies when advancements intended to enhance well-being inadvertently lead to unforeseen consequences. Consider:

- Harnessing **technological prowess for warfare**, only to **escalate conflict**.
- The **rapid communication** afforded by mobile phone technology now raises concerns over **privacy and social connectivity**.
- Our reliance on fossil fuels for **industry and transport** has exacerbated greenhouse emissions.

The term "progress trap" was popularized by Canadian historian and author Ronald Wright in 2004. Wright describes it as a situation where human innovations intended to solve problems lead to unintended, detrimental outcomes. Here is what Wright says about progress:

"Social complexity is a double-edged sword. The same drive that has enabled us to organize and build has also made possible our heedless destruction of nature and our own prospects."

"We are a runaway species, and our runaway appetites are now spilling into the world around us."

“The myth of progress has sometimes served us well – those of us seated at the best tables, anyway – and may continue to do so. But I shall argue in this book that it has also become dangerous. Progress has an internal logic that can lead beyond reason to catastrophe. A seductive trail of successes may end in a trap. Take weapons for example. Ever since the Chinese invented gunpowder, there has been great progress in the making of bangs: from the firecracker to the cannon, from the petard to the high explosive shell. And just when high explosives were reaching a state of perfection, progress found the infinitely bigger bang in the atom. But when the bang we can make can blow up our world, we have made rather too much progress.”

FURTHER DISCUSSION QUESTIONS:

- What does it mean to be a “runaway species”?
- Can you think of some examples of our “runaway appetites”?
- What is Wright suggesting when he says that the myth of progress has served “those of us seated at the best tables”?

B) MAPPING PROGRESS TRAPS (40 MINS)



INNOVATION IN WARFARE



RESOURCE EXTRACTION



MOBILE COMMUNICATION



MASS PRODUCTION OF FOOD



FAST FASHION



FOSSIL FUELS FOR TRANSPORT

This task challenges students to explore how some of our greatest modern advancements have also led to unintended consequences.

Students can complete this activity using pens and butcher’s paper or, if available, digital tools like Canva. For a more creative approach, groups can present their “Progress Trap Map” through spoken word and physical freeze frames.

- In groups of 3–5, select one “progress trap” from the six options above.
- Using **butcher’s paper or a digital tool**, create a flowchart that maps the stages of your chosen progress trap. Your flowchart should include the following **five stages** (here we have used mass food production as an example):

1. INITIAL ADVANCEMENT

(Industrialised farming techniques increase food production.)

2. SHORT-TERM BENEFITS

(Higher food output reduces hunger, supports population growth, and boosts economic development.)

3. UNINTENDED CONSEQUENCES

(Overuse of fertilisers leads to soil degradation and water pollution)

4. ATTEMPTS TO FIX THE NEW PROBLEM

(Introduction of genetically modified crops, soil restoration techniques, and stricter environmental regulations.)

5. CHALLENGES OR NEW ISSUES CREATED

(Dependence on GM crops and agrochemicals, loss of traditional farming knowledge, etc.)

- Each group presents their flowchart to the class, explaining the chain of events.
-

LEARNING SEQUENCE 2: BIG DAMS - CASE STUDY

PRINT COPIES OF WORKSHEET 2.1

To deepen their understanding of large dam projects, this task invites students to explore real-world examples that have been both celebrated and criticised.

- Divide the class into three groups and assign each group one of the following dams to investigate:

GROUP 1: Sardar Sarovar Dam (Narmada River)

GROUP 2: Tehri Dam (Uttarakhand)

GROUP 3: Polavaram Dam (Andhra Pradesh)

- Using the internet, each group will have 40 minutes to research their assigned dam, focusing on its environmental, social, and economic impacts.
- Once their research is complete, groups can complete **Worksheet 2.1 - Pros and Cons**, outlining both the positive and negative effects of the dam project. They should consider factors such as displacement, economic benefits, ecological consequences, and any political implications.



TEHRI DAM

Source: www.jagranjosh.com



SARDAR SAROVAR DAM

Source: www.adda247.com



POLAVARAM DAM

www.thecoreengineers.com

LEARNING SEQUENCE 3: ARUNDHATI ROY

PRINT WORKSHEET 3.1

Arundhati Roy is an Indian author, activist, and political commentator, best known for her Booker Prize-winning novel *The God of Small Things* and her outspoken critiques of globalisation, environmental destruction, and social injustice.

Her essay “The Greater Common Good” was originally published in 1999. The essay is a scathing indictment of **large-scale dam projects in India**.

These projects, including the **Sardar Sarovar Dam**, were intended to provide hydroelectric power and irrigation water to millions of people, but they also faced **significant criticism and opposition from environmentalists, activists, and local communities**.

Roy’s essay critiques the **displacement of thousands of villagers and the destruction of ecosystems caused by the dams**. She argues that while the government promotes these projects as essential for development and progress, they often neglect the profound human and ecological costs involved.



IMAGE SOURCE: RENA EFFENDI FOR VOGUE 2017

“Big Dams started well, but have ended badly.”
- ARUNDHATI ROY

A) READING TASK (20-30 MINS)

On the following page, you will find extracts from Arundhati Roy’s 1999 essay ‘The Greater Common Good’, which was written in response to the construction of the Sardar Sarovar Dam in the Narmada Valley. This is the same region where Shakthiwaran sets his play, *The Wrong Gods*. After reading these extracts, conduct a group discussion using the following questions:

1. What are the issues associated with Big-Dam Projects?
2. What does Roy mean when she says, “The ethnic ‘otherness’ of their victims takes some of the pressure off the Nation Builders”?
3. Roy argues that “India’s poorest people are subsidizing the lifestyles of her richest.” In what other instances in human history has this dynamic occurred?

Big Dams started well, but have ended badly. There was a time when everybody loved them, everybody had them - the Communists, Capitalists, Christians, Muslims, Hindus, Buddhists. There was a time when Big Dams moved men to poetry. Not any longer. All over the world there is a movement growing against Big Dams. In the First World they're being de-commissioned, blown up. The fact that they do more harm than good is no longer just conjecture. Big Dams are obsolete. They're uncool. They're undemocratic. They're a Government's way of accumulating authority (deciding who will get how much water and who will grow what where). They're a guaranteed way of taking a farmer's wisdom away from him. They're a brazen means of taking water, land and irrigation away from the poor and gifting it to the rich. Their reservoirs displace huge populations of people, leaving them homeless and destitute. Ecologically, they're in the doghouse. They lay the earth to waste. They cause floods, water-logging, salinity, they spread disease. There is mounting evidence that links Big Dams to earthquakes.

Big Dams haven't really lived up to their role as the monuments of Modern Civilisation, emblems of Man's ascendancy over Nature. Monuments are supposed to be timeless, but dams have an all-too-finite lifetime. They last only as long as it takes Nature to fill them with silt. It's common knowledge now that Big Dams do the opposite of what their Publicity People say they do - the Local Pain for National Gain myth has been blown wide open.

For all these reasons, the dam-building industry in the First World is in trouble and out of work. So it's exported to the Third World in the name of Development Aid, along with their other waste like old weapons, superannuated aircraft carriers and banned pesticides.

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33 million. That's what it works out to. Thirty-three million people. Displaced by big dams alone in the last fifty years. What about those that have been displaced by the thousands of other Development Projects? At a private lecture, N.C. Saxena, Secretary to the Planning Commission, said he thought the number was in the region of 50 million (of which 40 million were displaced by dams). We daren't say so, because it isn't official. It isn't official because we daren't say so. You have to murmur it for fear of being accused of hyperbole. You have to whisper it to yourself, because it really does sound unbelievable. It can't be, I've been telling myself. I must have got the zeroes muddled. It can't be true. I barely have the courage to say it aloud. To run the risk of sounding like a 'sixties hippie dropping acid ("It's the System, man!"), or a paranoid schizophrenic with a persecution complex. But it is the System, man. What else can it be?

Fifty million people.

Go on, Government, quibble. Bargain. Beat it down. Say something.

I feel like someone who's just stumbled on a mass grave.

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Fifty million is more than the population of Gujarat. Almost three times the population of Australia. More than three times the number of refugees that Partition created in India. Ten times the number of Palestinian refugees. The Western world today is convulsed over the future of one million people who have fled from Kosovo.

A huge percentage of the displaced are tribal people (57.6 per cent in the case of the Sardar Sarovar Dam). Include Dalits and the figure becomes obscene. According to the Commissioner for Scheduled Castes and Tribes, it's about 60 per cent. If you consider that tribal people account for only eight per cent, and Dalits fifteen per cent, of India's population, it opens up a whole other dimension to the story. The ethnic 'otherness' of their victims takes some of the pressure off the Nation Builders. It's like having an expense account. Someone else pays the bills. People from another country. Another world. India's poorest people are subsidising the lifestyles of her richest.

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The millions of displaced people don't exist anymore. When history is written they won't be in it. Not even as statistics. Some of them have subsequently been displaced three and four times - a dam, an artillery proof range, another dam, a uranium mine, a power project. Once they start rolling, there's no resting place. The great majority is eventually absorbed into slums on the periphery of our great cities, where it coalesces into an immense pool of cheap construction labour (that builds more projects that displace more people). True, they're not being annihilated or taken to gas chambers, but I can warrant that the quality of their accommodation is worse than in any concentration camp of the Third Reich. They're not captive, but they re-define the meaning of liberty.

The millions of displaced people in India are nothing but refugees of an unacknowledged war. And we, like the citizens of White America and French Canada and Hitler's Germany, are condoning it by looking away. Why? Because we're told that it's being done for the sake of the Greater Common Good. That it's being done in the name of Progress, in the name of National Interest (which, of course, is paramount). Therefore gladly, unquestioningly, almost gratefully, we believe what we're told. We believe that it benefits us to believe.

Allow me to shake your faith. Put your hand in mine and let me lead you through the maze. Do this, because it's important that you understand. If you find reason to disagree, by all means take the other side. But please don't ignore it, don't look away.

B) WRITTEN RESPONSE (30 MINS)

- Each student will compose a structured paragraph response (approximately 200 words) addressing the question:

“Are large dams a just and ethical solution for water and energy needs, or do they create more harm than good?”

WHAT TO INCLUDE:

- Use at least **one quote** from the ‘The Greater Common Good’ by Arundhati Roy to support their argument.
 - Incorporate **geographical concepts** such as displacement, sustainability, environmental degradation, and rural-urban migration.
 - Engage with the **ethics** of dam construction: *Is it ethical to displace millions of people in the name of “progress”? Who has the power to decide who gains and who loses?* Consider Roy’s argument that *“India’s poorest people are subsidising the lifestyles of her richest”*—is this an example of development, or exploitation?
-

LEARNING SEQUENCE 4: CASE STUDY

PRINT WORKSHEET 4.1

This learning sequence examines Australia's involvement in the Panguna mine in Bougainville, Papua New Guinea. It encourages students to draw insightful connections between the Big Dam Project in India, the writings of Arundhati Roy, and the mining operations in Bougainville, fostering a deeper understanding of the complexities of "progress" and its consequences.

TOPIC OVERVIEW:

The Bougainville mining project, also known as the Panguna mine, was a large-scale copper and gold mining operation in Bougainville, formerly a part of Papua New Guinea. It was initiated in the 1970s by Bougainville Copper Limited (BCL), a subsidiary of the Australian company Rio Tinto. Australia's involvement was central, as it owned the company and provided political and financial backing.

While the mine generated substantial revenue for the PNG government and foreign shareholders, it caused severe environmental damage, including deforestation and water pollution. Limited benefits for local communities and Australia's perceived role in resource exploitation fueled tensions, contributing to the Bougainville Civil War (1988-1998). The mine's closure left lasting environmental and social impacts.



Contaminated water due to mine waste in the region of Bougainville. Source: www.ips.net

A) WATCH (10 MINS)



As a class, watch this 7-minute video from the ABC about the legacy of the Panguna mines for the local communities of Bougainville. Watch and then discuss:

- *What is wrong with the water that runs through Bougainville?*
- *What has happened to the forests and wet lands?*

B) RESEARCH - 'AFTER THE MINE' (15 MINS)

On the following page is a summary of a document created by the **Human Rights Law Centre**, assessing the impact of the Panguna mine on the environment and communities in Bougainville.

Ask students to read this document independently, highlighting or noting important ideas and images that stand out to them.

A copy of the full document can be found **HERE**.

‘AFTER THE MINE’: LIVING WITH RIO TINTO’S DEADLY LEGACY

From *Human Rights Law Centre*

In December 2019, the people of the small Pacific island of Bougainville voted overwhelmingly to become the world’s newest nation. The referendum on the island’s independence from Papua New Guinea was a peaceful, joyous affair, accompanied in many places by singing and dancing in the streets.

‘Bougainville is on the verge of freedom!’ declared the President of the region’s autonomous government, Dr John Momis. *‘We are on a mission, and our mission is to liberate Bougainville and enable the people to be free to decide and manage their own affairs.’*

Bougainville’s future, however, remains overshadowed by the disastrous legacy of an Australian mining project.

Between 1972 and 1989, the Panguna mine, developed and majority-owned by Anglo-Australian mining giant Rio Tinto, was one of the world’s largest copper and gold mines. During this period, the company’s subsidiary, Bougainville Copper Limited (BCL) discharged over a billion tonnes of mine waste into local river systems, devastating the environment and the health and livelihoods of local communities.

Anger over these practices and the unequal distribution of the mine’s profits ultimately led to an insurrection by local people in 1989 which forced the mine’s closure and triggered a brutal, decade-long civil war which cost the lives of up to 15,000 people.

In 2016, Rio Tinto divested from the mine and walked away without having contributed to clean-up or rehabilitation.

As a result, Panguna continues to gape like an open wound in the centre of the island. Polluted water from the mine pit flows unabated into local rivers, turning the riverbed and surrounding rocks an unnatural blue. The Jaba-Kawerong river valley downstream of the mine resembles a moonscape, with vast mounds of grey tailings waste and rock stretching almost 40km downstream to the coast.

An estimated 12-14,000 people live downstream of the mine along the Jaba-Kawerong river valley.

This report examines the ongoing impacts of the mine on the human rights of these communities that Rio Tinto has left behind. The report is based on site visits to 38 villages and 60 in-depth interviews undertaken by the Human Rights Law Centre and local research partners from the Panguna area between September 2019 and February 2020. It also draws on the research and findings of over 300 interviews of mine-affected residents conducted under a research project initiated by the Catholic Diocese of Bougainville between 2017 and 2019, and an extensive desktop review of primary and secondary sources.

Our research concludes that the impacts of the mine and Rio Tinto’s failure to address them have devastated communities and left them in a deteriorating, increasingly dangerous situation.

The contamination of the Kawerong and Jaba rivers by mine waste has severely limited peoples’ access to clean water. Most communities have to pipe drinking water over long distances or rely on rainwater water tanks or creeks which frequently dry up during the dry season. Many families have no option but to continue to use the polluted rivers for bathing and washing, or to cross them to tend crops or go to school. Those interviewed reported serious health impacts as a consequence, including sores and skin diseases, diarrhoea, respiratory problems and pregnancy complications.

The chemical contamination of the rivers is compounded by ongoing erosion from the vast mounds of tailings waste dumped by the company in the Jaba river valley. With each heavy rainfall, huge volumes of tailings sand is washed into the rivers, flooding large tracts of land downstream with polluted mud – displacing villages, contaminating water sources and destroying new areas of forest and agricultural land essential to peoples’ livelihoods.

At such times, river crossings become perilous, with constantly shifting channels and large areas of quicksand. Human Rights Law Centre researchers were told of multiple incidents in which community members, including children, had drowned or sustained serious injuries while attempting to cross the rivers due to the treacherous conditions.



The massive problems left by the mine's operation are now being exacerbated by its crumbling infrastructure. Levees constructed in the 1980s to contain the tailings and divert the rivers are crumbling, hastening erosion into the rivers and raising the prospect of catastrophic collapse. In one area visited, the levee was being undermined by the river, posing a serious risk to nearby villages.

The impacts of the mine continue to infringe nearly all the economic, social and cultural rights of local communities, including their fundamental rights to food, water, health, housing and an adequate standard of living.

Loss of arable and forested land through flooding and tailings deposits has created food shortages and deprived communities of traditional building materials for their homes. Sacred sites fundamental to communities' connections with the spirits of their ancestors have been destroyed.

Some communities have been displaced entirely and are now living in overcrowded conditions on land belonging to others.

In a bitter twist of irony, the impoverishment caused by the mine's impacts is driving many residents back into the polluted rivers to pan for gold to support themselves and their families, further heightening the risks to their health.

Communities interviewed stressed the need for urgent assistance to help them deal with these overwhelming problems, but neither the Autonomous Bougainville Government (ABG) nor the Government of Papua New Guinea (PNG) alone have the resources or technology to manage the impacts of the mine's tailings or clean up the site. Indeed, post referendum, the ABG and at least some landowner groups see re-opening the mine as one of the only options for funding their future independence from Papua New Guinea.

Rio Tinto holds itself out as a global corporate leader on human rights and the environment and claims to pay particular attention to communities' rights to land, water and cultural heritage. Unless it addresses its legacy at Panguna, however, and contributes to remedying the massive problems it has created, the company will remain in serious violation of its human rights and environmental obligations.



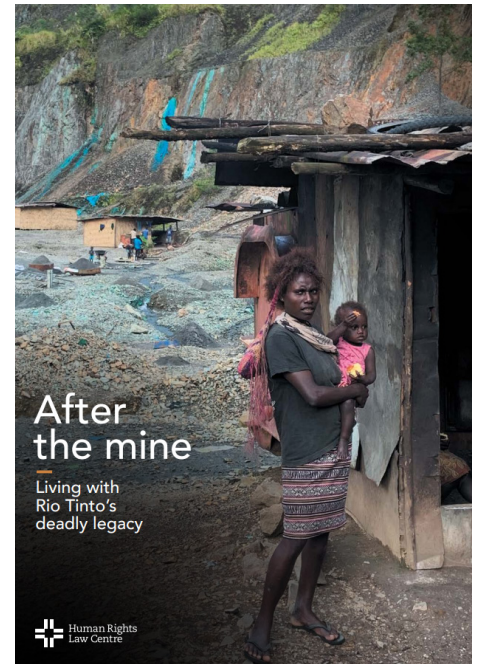
A map of Bougainville in relation to Australia

SOURCE: <https://www.bbc.com/news/world-asia-50009912>

B) DISCUSSION - 'AFTER THE MINE' (15 MINS)

After reading the summary from “After the Mine,” lead students in a discussion that connects this case study to concepts they’ve explored in previous learning sequences:

- How might the Panguna Mine be considered a ‘progress trap’?
- In Shakthi’s *The Wrong Gods*, one character says, “I am sick to death of this system which requires one community to be destroyed for another to benefit.” How do you see this dynamic affecting the people of Bougainville?
- In her essay *The Greater Common Good*, Arundhati Roy argued, “India’s poorest people are subsidizing the lifestyles of her richest.” Are there any parallels between India’s Big Dam Project and the Panguna Mines?



A local woman from Bougainville points to the abandoned Panguna Mine.
SOURCE: HUMAN RIGHTS LAW CENTRE

WORKSHEETS

Humanity's journey through history is marked by incredible achievements and advancements. From mastering fire to exploring distant galaxies, our capacity for innovation seems boundless. Yet, woven into this narrative of progress lies a cautionary tale — *the progress trap*. It ensnares societies when advancements intended to enhance well-being inadvertently lead to unforeseen consequences.

CONSIDER:

- Harnessing **technological prowess** for **warfare**, only to **escalate conflict**.
- The **rapid communication** afforded by mobile phone technology now raises concerns over **privacy and social connectivity**.
- Our reliance on fossil fuels for **industry and transport** has exacerbated greenhouse emissions.



IMAGE SOURCE: [HTTPS://THENARWHAL.CA/](https://thenarwhal.ca/)

The term “progress trap” was popularized by Canadian historian and author Ronald Wright in 2004. Wright describes it as a situation where human innovations intended to solve problems lead to unintended, detrimental outcomes. Here is what Wright says about progress:

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“We are a runaway species, and our runaway appetites are now spilling into the world around us.”

“The myth of progress has sometimes served us well – those of us seated at the best tables, anyway – and may continue to do so. But I shall argue in this book that it has also become dangerous. Progress has an internal logic that can lead beyond reason to catastrophe. A seductive trail of successes may end in a trap. Take weapons for example. Ever since the Chinese invented gunpowder, there has been great progress in the making of bangs: from the firecracker to the cannon, from the petard to the high explosive shell. And just when high explosives were reaching a state of perfection, progress found the infinitely bigger bang in the atom. But when the bang we can make can blow up our world, we have made rather too much progress.”

POSITIVE ASPECTS

NEGATIVE ASPECTS



Big Dams started well, but have ended badly. There was a time when everybody loved them, everybody had them - the Communists, Capitalists, Christians, Muslims, Hindus, Buddhists. There was a time when Big Dams moved men to poetry. Not any longer. All over the world there is a movement growing against Big Dams. In the First World they're being de-commissioned, blown up. The fact that they do more harm than good is no longer just conjecture. Big Dams are obsolete. They're uncool. They're undemocratic. They're a Government's way of accumulating authority (deciding who will get how much water and who will grow what where). They're a guaranteed way of taking a farmer's wisdom away from him. They're a brazen means of taking water, land and irrigation away from the poor and gifting it to the rich. Their reservoirs displace huge populations of people, leaving them homeless and destitute. Ecologically, they're in the doghouse. They lay the earth to waste. They cause floods, water-logging, salinity, they spread disease. There is mounting evidence that links Big Dams to earthquakes.

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'Bougainville is on the verge of freedom!' declared the President of the region's autonomous government, Dr John Momis. *'We are on a mission, and our mission is to liberate Bougainville and enable the people to be free to decide and manage their own affairs.'*

Bougainville's future, however, remains overshadowed by the disastrous legacy of an Australian mining project.

Between 1972 and 1989, the Panguna mine, developed and majority-owned by Anglo-Australian mining giant Rio Tinto, was one of the world's largest copper and gold mines. During this period, the company's subsidiary, Bougainville Copper Limited (BCL) discharged over a billion tonnes of mine waste into local river systems, devastating the environment and the health and livelihoods of local communities.

Anger over these practices and the unequal distribution of the mine's profits ultimately led to an insurrection by local people in 1989 which forced the mine's closure and triggered a brutal, decade-long civil war which cost the lives of up to 15,000 people.

In 2016, Rio Tinto divested from the mine and walked away without having contributed to clean-up or rehabilitation.

As a result, Panguna continues to gape like an open wound in the centre of the island. Polluted water from the mine pit flows unabated into local rivers, turning the riverbed and surrounding rocks an unnatural blue. The Jaba-Kawerong river valley downstream of the mine resembles a moonscape, with vast mounds of grey tailings waste and rock stretching almost 40km downstream to the coast.

An estimated 12-14,000 people live downstream of the mine along the Jaba-Kawerong river valley.

This report examines the ongoing impacts of the mine on the human rights of these

communities that Rio Tinto has left behind. The report is based on site visits to 38 villages and 60 in-depth interviews undertaken by the Human Rights Law Centre and local research partners from the Panguna area between September 2019 and February 2020. It also draws on the research and findings of over 300 interviews of mine-affected residents conducted under a research project initiated by the Catholic Diocese of Bougainville between 2017 and 2019, and an extensive desktop review of primary and secondary sources.

Our research concludes that the impacts of the mine and Rio Tinto's failure to address them have devastated communities and left them in a deteriorating, increasingly dangerous situation.

The contamination of the Kawerong and Jaba rivers by mine waste has severely limited peoples' access to clean water. Most communities have to pipe drinking water over long distances or rely on rainwater water tanks or creeks which frequently dry up during the dry season. Many families have no option but to continue to use the polluted rivers for bathing and washing, or to cross them to tend crops or go to school. Those interviewed reported serious health impacts as a consequence, including sores and skin diseases, diarrhoea, respiratory problems and pregnancy complications.

The chemical contamination of the rivers is compounded by ongoing erosion from the vast mounds of tailings waste dumped by the company in the Jaba river valley. With each heavy rainfall, huge volumes of tailings sand is washed into the rivers, flooding large tracts of land downstream with polluted mud – displacing villages, contaminating water sources and destroying new areas of forest and agricultural land essential to peoples' livelihoods.

At such times, river crossings become perilous, with constantly shifting channels and large areas of quicksand. Human Rights Law Centre researchers were told of multiple incidents in which community members, including children, had drowned or sustained serious injuries while attempting to cross the rivers due to the treacherous conditions.

The massive problems left by the mine's operation are now being exacerbated by its crumbling infrastructure. Levees constructed in the 1980s to contain the tailings and divert the rivers are crumbling, hastening erosion into the rivers and raising the prospect of catastrophic collapse. In one area visited, the levee was being undermined by the river, posing a serious risk to nearby villages.

The impacts of the mine continue to infringe nearly all the economic, social and cultural rights of local communities, including their fundamental rights to food, water, health, housing and an adequate standard of living.

Loss of arable and forested land through flooding and tailings deposits has created food shortages and deprived communities of traditional building materials for their homes. Sacred sites fundamental to communities' connections with the spirits of their ancestors have been destroyed.

Some communities have been displaced entirely and are now living in overcrowded conditions on land belonging to others.

In a bitter twist of irony, the impoverishment caused by the mine's impacts is driving many residents back into the polluted rivers to pan for gold to support themselves and their families, further heightening the risks to their health.

Communities interviewed stressed the need for urgent assistance to help them deal with these overwhelming problems, but neither the Autonomous Bougainville Government (ABG) nor the Government of Papua New Guinea (PNG) alone have the resources or technology to manage the impacts of the mine's tailings or clean up the site. Indeed, post referendum, the ABG and at least some landowner groups see re-opening the mine as one of the only options for funding their future independence from Papua New Guinea.

Rio Tinto holds itself out as a global corporate leader on human rights and the environment and claims to pay particular attention to communities' rights to land, water and cultural heritage. Unless it addresses its legacy at Panguna, however, and contributes to remedying the massive problems it has created, the company will remain in serious violation of its human rights and environmental obligations.



A map of Bougainville in relation to Australia

SOURCE: <https://www.bbc.com/news/world-asia-50009912>

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