

# TRANSPORT

*Rich Living*



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Conservation and Hope

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NEW ZEALAND  
CHRISTIANS  
IN SCIENCE  
TE KAHUI  
WHAKAPONO KI NGĀ  
KAIPŪTAIAO O TE MOTU

in partnership with NZCIS

With input from Charles Creegan, Steve Muir & Pete Armstrong

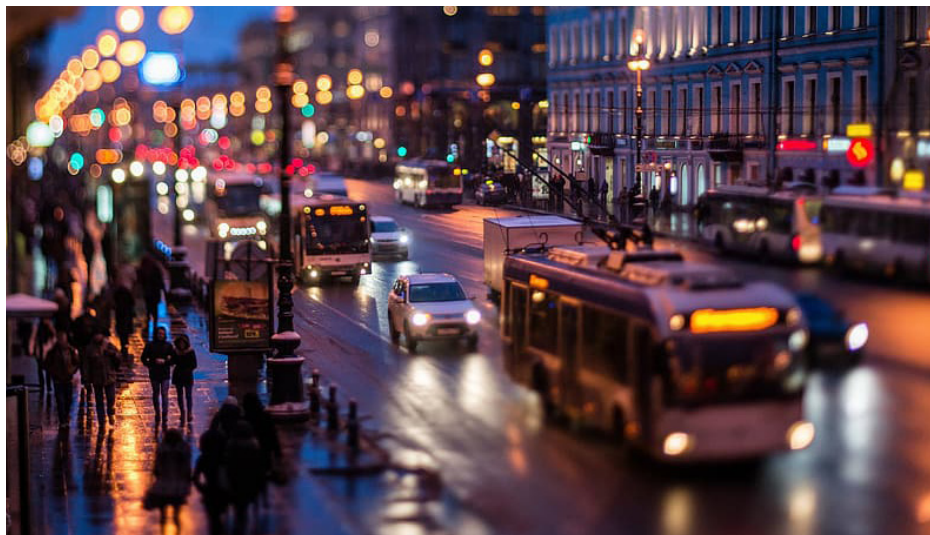
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# *Rich Living:*

Sustainability as integral to lives of faith



Welcome to '*Transport*', the fifth in the Rich Living series of study booklets produced by A Rocha Aotearoa New Zealand. Other titles available in the Rich Living series are: *Climate Change*, *Water*, *Food*, and *Waste*.

The Rich Living series is one of the resources offered by A Rocha Aotearoa New Zealand as part of the Eco Church NZ project - [www.ecochurch.org.nz](http://www.ecochurch.org.nz). Through the Eco Church NZ project, our goal is to support churches across Aotearoa New Zealand to actively care for God's earth as an integral part of their mission. Our role is to resource, empower and build relationships among all those wanting to integrate creation care and sustainability into the life of the church in Aotearoa New Zealand. We work collaboratively with the A Rocha International family and in partnership with local NZ churches, denominations, creation care groups and individuals.

We passionately believe that Christian faith communities have the potential to offer glimpses of authentic life – living in sustainable ways that cares for the long-term wellbeing of our broader communities and neighbours – both human and nature. We're glad you have joined us!

As this booklet was being written the world was plunged into the COVID-19 crisis, which has involved rolling lockdowns of varying severity in most countries of the world. For a while, beginning in Wuhan, China, almost all transport ceased. People have largely gone “home”. Accidents, pollution, greenhouse gases (GHGs) have all plummeted. We can only reflect as we read this booklet on how this crisis has changed us, and will change us further in months and years to come. What difference does it make? To some it may feel that God is punishing us, but we know from the ministry of Jesus that God is a God of healing. Nevertheless, is COVID-19 a judgment on our way of life? The West has become tone-deaf to nature, and our lives are lived without taking into consideration the needs and flourishing of other creatures.

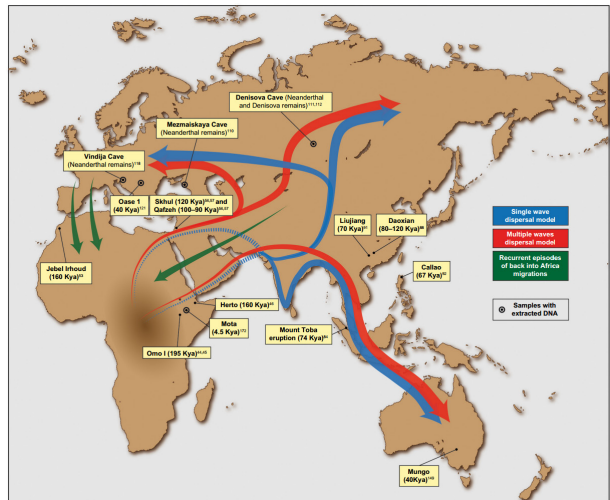
The human activities which come under the heading of transport are not problematic in themselves, because we are as a species curious and restless. Transport is a human activity which has always characterized us, but it produces both good and evil. Jesus talked about the way in which good and evil were entwined in this life, in the parable of the wheat and the tares. He warned that it was not always possible to take out the weeds or tares without also dislocating the wheat. In a “wheat and tares” world Christians must always be attentive to the challenges that are intimately associated with every good, especially as we ramp up the stakes and the consequences with technology. At the end of this study I will ask us all to reflect again on how the COVID-19 crisis has affected and changed our collective future and our churches.



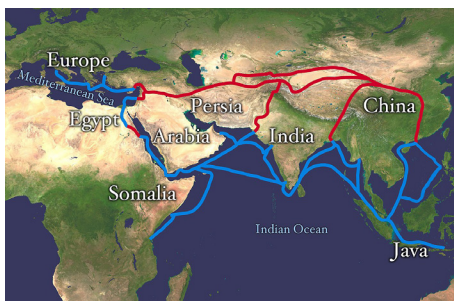
# Study 1 – History of Transport & Introduction

## We have always travelled

Humans have always travelled. *Homo sapiens* travelled on foot out of Africa to the farthest reaches of the planet 70,000-50,000 years ago. That innate restlessness has remained with us. Our relentless movement has made us the consummate adaptors on the planet, able to live in every terrain, and to survive climate change, and events that might have killed less adaptable species. Early humans were hunter gatherers, moving by necessity from one feeding ground to another, or living very lightly in a particular location. Even when we adopted a more agrarian habit (about 18,000-10,000 years ago) we retained our wanderlust.



*Putative migration waves out of Africa*



*Silk Road*

When carriages and transport using animals were invented early civilizations depended on trade along the so-called Silk Road from China to Europe. Trade, adventure, war, famine, and curiosity have kept us moving even after we started building towns, cities and nation states. Examples of all of this are found in some of the ancient biblical stories.



## Read: Genesis 12

Three to four thousand years ago we hear the story of Abram and his wife Sara journeying out into the desert from Haran, a

Mesopotamian city, to begin his unique sojourn with God, along with his flocks, his nephew Lot and a much wider group of family and servants, together with many possessions in trail. He probably travelled with donkeys and simple caravans, though the bible also makes reference to camels (Gen 37:25).



### Discuss:

- Is there something about being on a journey, out of our normal routines, that makes us more open to the Divine, more aware of our dependency?
- Think about this in the context of our own lives.

## Connection

Humans have travelled to find better resources and food, to conquer, to escape famine or changing climate, but also to find connection. From earliest times there have been kinship laws, which prevented marriage between close family members (see Lev 18:6, for instance).

The Bible tells of Isaac going in search of a wife and finding Rebecca. The constant movement of people back and forth and subsequent interbreeding has kept the human race one species, extending all the way from Africa to Iceland and to Australia. And now that humans are dispersed around the globe, we travel to meet others, to experience different cultures; we travel for family reunions or to meet the needs of people quite different from us who are suffering from the effects of war, famine, disaster, epidemic or deprivation.



## New Testament missionary travel

The early church was spread by the journeys of Paul and others to all the known parts of the ancient world. Missionaries went as far as India by 52CE (by legend this was achieved by the apostle Thomas).



### **Read: Matthew 28:19-20**

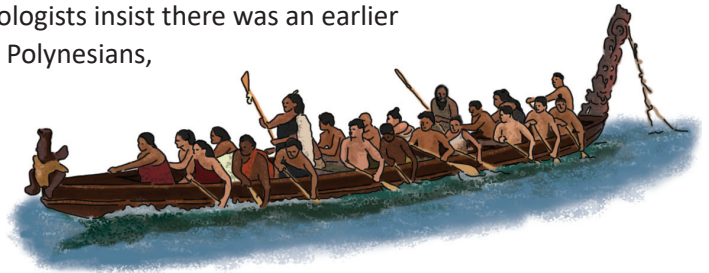
“Therefore go and make disciples of all nations, baptizing them in the name of the Father and of the Son and of the Holy Spirit.”

### **Acts 1:8**

“You will receive power when the Holy Spirit comes on you, and you will be my witnesses in Jerusalem and in all Judea and Samaria and to the ends of the earth.”

Missionary journeys remained important, but culminated in the great push of the nineteenth century when sailing boats, steamships and trains had become a part of the developing British Empire’s machinery. Missionaries tended to go with the colonising powers, sometimes preceding them as was the case in New Zealand, and sometimes coming with them.

In New Zealand we all come from faraway lands. The first people of New Zealand, the tangata whenua, migrated here on waka 1200 years ago (though some anthropologists insist there was an earlier migration). Europeans, Polynesians, Asians, Africans and others have settled only in the last few hundred years.



### **Read: Genesis 1:28; Genesis 11:1-4; Jeremiah 29:5**



### **Watch**

An Animated History of Transport

<https://www.youtube.com/watch?v=FaLCQo8NJFA>



## Activity

How did your family members arrive in New Zealand?  
Draw a family tree, showing when and how your family members arrived in New Zealand.



## Discussion:

- When did your ancestors come to NZ and from where?
- Was famine or poverty a reason for their migration?
- And how did they travel?
- Do you know what brought them here?
- Has your family been involved in any of the great missionary journeys of the last few centuries?
- Do you know anything about the way your grandparents or great grandparents travelled as children?
- We might compare our lives to those of an historical TV show like Downton Abbey. How do our modes of travel change our experience of life, community and even time?
- What are some of the advantages of travel?  
What are downsides, spiritually and in terms of consumption?



## Summary: Transport – the wheat and the tares

In the parable of the wheat and the tares (Matt 13) Jesus talks about how we cannot just pull out the tares in a field because they are sometimes holding up the wheat. This is true of most human production and activities. While some people interpret our present ecological crisis as the inevitable outcome of human selfishness there is another way of seeing the crisis. There is both good and bad (wheat and tares), experienced in an interconnected way in human life, including travel and transport. Perhaps we should not feel guilty for our innate restlessness, nor about our curiosity about how others live, nor about our wish to see the world. It seems to come with being human — and



is commanded in Gen 1. Both travel and home-making characterise us as a species (Genesis 1 & Jeremiah 29:5).

Katharine Hayhoe goes so far as to say – controversially – that she is grateful for the fossil fuel industry and all that it has given us: roads, schools, universities. And she is of course right, that most of what we take for granted in our world, from the easy consumption of goods from far flung places, to concrete panels for buildings, and steel to make cars all has depended on an easy fuel source for transport, and that has been oil.

But there has always been a downside to human driven-ness. Our 21st century civilization has taken transport and movement exponentially beyond that of the first millennium BC. We will examine the costs of transport in our contemporary world in the next sections.



Katharine Hayhoe, a renowned climate scientist and Christian said, in talking to a group of oil representatives<sup>1</sup>:

*“Yesterday I spoke to a club for your Albertan women in the petroleum industry, and we started our conversation with an appreciation for everything fossil fuels have brought us. After all, we’d be leading short, brutal lives if not for the Industrial Revolution!”*

Katharine has often criticized the oil industry, but she is also famous for arguing that we start where people are.

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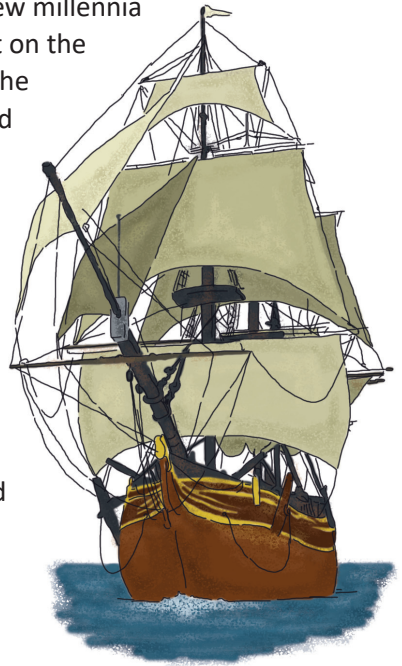
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- Silk Road. Public domain. Original image by Whole World Land and Oceans. <https://www.ancient.eu/image/8327/map-of-the-silk-road-routes/>

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- 1 <https://www.sierraclub.org/sierra/katharine-hayhoe-reveals-surprising-ways-talk-about-climate-change>

## Study 2 – Travel in the Anthropocene

Travel in prehistoric times, and even the first few millennia AD was relatively neutral in terms of its impact on the environment. World populations were small. The technology was the wheel. Sailing craft enabled the first long distance travel over oceans. Our ancestors all came to New Zealand on some form of boat, whether waka or sailing ship, using the power of the wind. By the late nineteenth century some of those ships were either powered by steam (coal), or combined steam and wind<sup>1</sup>. The travel was hard, and human waste and disease were a constant threat and a challenge on long journeys. But plastics did not accumulate in the water, oil did not contaminate the sea, and carbon dioxide levels did not rise significantly. Biodiversity suffered under human occupation and human populations suffered from the introduced diseases, but not to the extent that was to follow.



The Anthropocene is an ironic term, referring to that geological era. Normally a geological era refers to a period of between tens of thousands of years and a million or so years. The Anthropocene, in contrast, is that short span of a few hundred years in which the earth's climate has been primarily affected by humans. One of the major contributors to that change in climate has been our modes of transport.

Today with burgeoning populations, a worsening climate emergency, polluting and energy-demanding means of travel, we have to reflect again on how and why we travel, and on the dark side as well as the advantages of transport. Travel has never been so immediate, so fast, so personal, so cheap, or so often done for recreation alone. (Early indications are that COVID-19 may change this even in the long term.) Travel brings us food and material goods and is a form of glue which holds a society together, enabling the

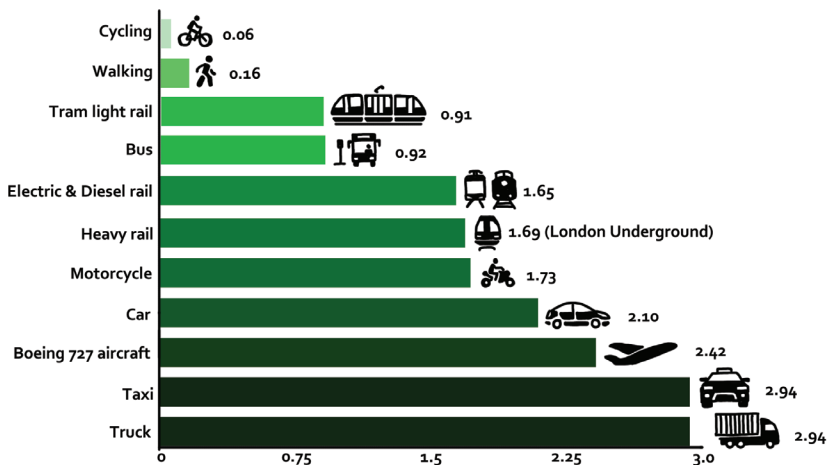
specialisation of trade and national productivity that is a hallmark of contemporary multi-national economies.

Carbon emissions from travel alone are 21% of New Zealand carbon production. Big cities also come with a huge cost in terms of travel.

People commute, often alone in private cars, or long distances into a city from the suburbs to work. Travel also contributes to the carbon cost of goods we buy and especially the food we eat, as mentioned in the Rich Living: *Food* booklet. Figures published in August 2020 by Statistics NZ<sup>3</sup> show the increasing carbon footprint of NZ households, with transport as the largest item.

Here is a rough comparison of the carbon output for different modes of travel:

### Transport Energy Efficiency

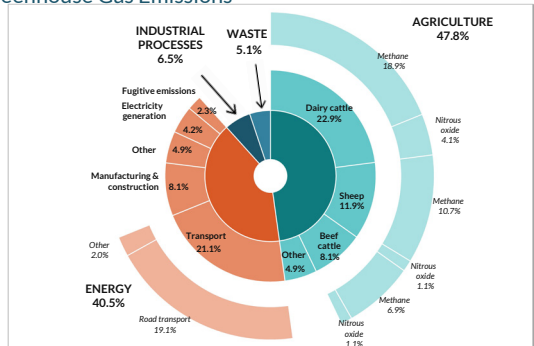


(more efficient) Megajoules per passenger kilometre travelled (less efficient)

Data source: Banister, D. (2003)<sup>4</sup>

### NEW ZEALAND'S Greenhouse Gas Emissions

Source: New Zealand's Greenhouse Gas Inventory  
1990-2018, published April 2020



Note: Percentages in the graph may not add up to 100 due to rounding.

Fugitive emissions are from the leakage, burning and controlled release of gases in oil and gas operations as well as escaping gases from coal mining and geothermal operations. Agricultural methane is mainly from livestock digestive systems and nitrous oxide is mainly from manure on soil. Emissions from Tokelau are not represented on this graph as they are 0.005% of New Zealand's gross emissions.

*New Zealand's Greenhouse Gas Inventory 1990-2018, published April 2020, Ministry for the Environment<sup>2</sup>*

These figures in practice depend on a lot of factors.

Trains which run on electricity are much more efficient, especially if the electricity is sourced from renewable electricity, like hydro, wind, solar Photo Voltaics (PV) and to a lesser extent, geothermal electricity. Bus efficiency declines significantly when fuelled by diesel, especially if the bus is negotiating stop and go traffic. Electric buses, like Wellington's former trolley bus system, were much more efficient and less polluting than the replacement diesel buses. Buses can easily be converted to take bio-diesel and then buses are one of the most efficient forms of transport, though the burning of crops is very controversial in itself. See this article by George Monbiot in *The Guardian* ("[Feeding Cars, Not People](#)," 23rd November, 2004<sup>5</sup>). He argues that turning arable land into biofuel production will cause mass starvation, and is not a sustainable proposal. And indeed Auckland the biofuel option has now been discarded and instead the megacity has made a commitment to phasing in electric buses and phasing out diesel. See [Stuff, March 12th, 2020](#).



There are less tangible effects of our modern transport. Speed and its efficiency grew out of the industrial revolution. Trains enabled produce and trade between one part of a continent and another. Cars, trains and eventually planes enormously increased the speed of life, but they have many downsides in terms of pollution, not only carbon released into the atmosphere (these will be discussed in the next study), but transport also has intangible side effects. As we travel fast across the world or across continents we fail to really see the world around us.

Our view of the world has become habituated to fleeting glimpses rather than the deeper contemplative outlook we get as we walk through a landscape.

Jacques Ellul famously says:

*With technology the positive aspects are easy to articulate and see, the negative aspects are always 'vague phenomena,' which are significant only by their bulk and their general nature...but [which] eventually give a certain negative style to human life*

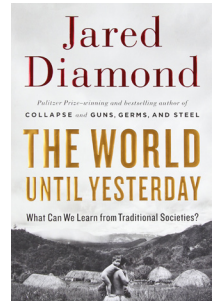
*(The Technological Bluff, Eerdmans, 1990)*



## Transport changing the fabric of life

Travel has also changed our lives drastically in the Anthropocene, in ways that we barely understand.

In a recent book, Jared Diamond describes the scene at Port Moresby airport. There are lots of people, young and old, speaking different languages. Although there are two policemen, nobody looks as though they are expecting anyone to attack them. The people all wear modern Western dress and have the usual handheld devices. He says, further:



*The airline clerks are moving their fingers over computer keyboards and looking at screens, punctuated by printing credit-card receipts at credit-card terminals. The crowd exhibits the usual mixture of good humour, patience, exasperation, respectful waiting in line, and greeting friends. When I reach the head of my line, I show a piece of paper (my flight itinerary) to someone I've never seen before and will probably never see again (a check-in clerk). She in turn hands me a piece of paper giving me permission to fly hundreds of miles to a place that I've never visited before, and whose inhabitants don't know me but will nevertheless tolerate my arrival.*

(Jared Diamond, *The World Until Yesterday: What Can We Learn from Traditional Societies?* Penguin Books, 2013)



Diamond relates how recent this is in Papua New Guinea history. Even a few generations ago none of this could be assumed. Strangers were a source of fear and suspicion. Few people lived to be old. Traditional clothing was indigenous to an area, and very few ever ventured far from their home village. This has all changed, thanks in part to modern means of travel, especially planes, which have improved, and disrupted life in just a few generations for all of us, bringing both enormous good, but also some of the diseases and unhappiness felt in Western society.

## Feedback

Although we know the Anthropocene is distinct and human transport is affecting the very possibility of life, humans find the present climate challenge difficult because we have so little immediate feedback. I might buy an EV or take the bus to work, and



generally work on my own private carbon budget, but nothing visibly changes in the world. Humans need feedback to effect consistent behavioural change.

From the early industrial revolution pollution changed Britain, and great cities around the world, but it was not until much later, after WWII that the air became so obviously polluted that something had to be done. In Britain, there was the Clean Air Act of 1956. The River Thames was also obviously polluted and is now one of the cleanest city waterways in the world in many ways (micro-plastics are a newly recognized challenge<sup>6</sup>). Recently we have seen pictures of Delhi and its unbearable smog, caused by local fires.

But CO<sup>2</sup> is invisible, and its rise is not so obvious, or is evident only in the strange turbulence of weather and its unpredictability over the last few decades, along with receding glaciers, shrinking lakes and increasingly destructive bushfires.

Feedback on CO<sup>2</sup> and GHGs is very diffuse, and requires that we trust experts and see complex levels of causality, neither of which humans are very good at doing. We also need new ways of communicating complex data. But this need has arisen at a time when “fake news” and deceptive data and image manipulation are increasingly common. We have a problem with trust, and with authorities.

There is data out there. The IPCC (International Panel on Climate Change<sup>7</sup>) regularly updates us with recent predictions. But translating this quite abstract — and often very alarming — document into something that motivates political and personal change is another thing altogether.

The present situation requires new levels of adaptability for our species. We have to learn to work together even while we can barely see any results from our efforts. As city councils and regional bodies throughout New Zealand declare a climate emergency, we do have some sense that authorities at least have “seen” the dilemma we are in, and are prepared to act. Will these declarations help us all to see and act in the appropriate way?

## Prophecy in the Anthropocene

That the Anthropocene is so relatively new is one reason humans find it hard to adapt. And yet there have always been people who could see clearly. Early prophets were people who could see some of complex social and cultural causes because they were unusually gifted and in touch with a deep spirituality. In particular, they were able to link human sin with environmental disruption.



### Read: Ezekiel 12:19

Say to the people of the land: ‘This is what the Sovereign Lord says about those living in Jerusalem and in the land of Israel: They will eat their food in anxiety and drink their water in despair, for their land will be stripped of everything in it because of the violence of all who live there.

### Isaiah 24:4-5, 7, 11

The earth dries up and withers  
 The world languishes and withers  
 The heavens languish together with the earth  
 The earth lies polluted under its inhabitants  
 For they have transgressed laws, violated the statutes  
 Broken the everlasting covenant  
 Therefore a curse devours the earth  
 And its inhabitants suffer for their guilt  
 Therefore the inhabitants of the earth dwindle  
 And few people are left  
 The wine dries up  
 The vine languishes  
 All the merry-hearted sigh . . .  
 The gladness of the earth is banished





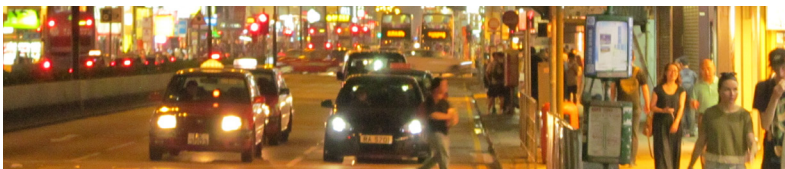
Today some might see people like Greta Thunberg as a modern-day prophet. She refuses to travel except by ship and by train. Various agencies like 350.org, Carbon Zero, and Extinction Rebellion, are organisations which are doing something similar.

Watch Greta Thunberg's speech to the United Nations here: <https://www.arocha.org/en/news/greta-goes-to-the-un/>

## Conclusion

Transport, then, is something that is hard-wired into us. Although some humans do not travel very much at all, many of us do, and we are by nature intensely social. We are relational highly pro-social creatures, and very often that does require us to travel. Even in the age of video conferencing via skype or zoom we greatly value the face-to-face encounter, as we should.

But our modern methods of transport have become a huge part of the ecological problem, both in terms of climate and pollution. And they are a very big part of the problem we can do something about, both in terms of our own travel and the travel that is required to bring us our food and our goods (see the Rich Living: *Food* booklet). How can we live sustainably as inter-relational beings who value the face to face? All our movements must be interrogated. Do we have to go? How can we travel more sustainably? How can businesses and NGOs factor in less movement, just for the sake of it? Trade is important, but what trade? Do we need grapes or oranges flown in from the USA? Is it important to keep buying bananas from our Pacific cousins? These are complex questions. Navigating everyday life has become an urgent and time-consuming ethical question. We are not used to life being so complicated in this way. ***For although our urge to travel cannot be understood as sinful in itself we do now need a revolution, a conversion, an urgent plan of action for turning around climate change, and very quickly.***







## **Read: Mark 2:5,9-10; Ephesians 2:1; 1 John 3:4; Romans 6:20**

Sin, or *harmatia* is often translated as “missing the mark.” We don’t have to be intentionally missing the mark to sin. In the Anglican prayer book, we pray to be forgiven for our sins of commission and omission, and in the Prayer of Confession we pray: We sin in weakness, we sin in ignorance, and also –through our own deliberate fault. We have all been missing the mark. But it is not surprising that it was so hard to tell. Travel is a natural human drive. Blindness to consequences is a human trait. The accumulation of poisons and the change in climate have come slowly. As a species we are slow at heeding warnings. Authorities who should have known better often ignore all the signs, or suppress the evidence, as has been done by some big oil companies. However, missing the mark can also be done intentionally, and the book of Romans speaks of being enslaved to sin, also a pertinent metaphor for our present situation.



## **Activity**

- Changes often happen silently without our notice over time. Try to build an inventory of all the changes you might have seen or experienced in your lifetime, in our climate, flora and fauna, pollution? Have you noticed a decrease in insect numbers, for instance, over your life-time? What about birds and bird-song? What about plastic on beaches?
- See if you can devise an ongoing “experiment” to document some of these changes, even in the short term. For instance, insect numbers have been monitored by citizen-scientists in many countries. Beach cleanup groups can not only provide a service to the community but might be able to document changes over time.  
<https://sustainablecoastlines.org/>
- Are there opportunities to increase or initiate the following activities at your local church, work or school – carpooling, a walking bus or biking to school?

- Can you try these quite hard activities: challenge yourself or your family/church to a car free week. Or to walk instead of driving to all places less than 2km from home.



### Questions for discussion:

- Who are some other modern prophets?
- How can we become more open to the role of prophets in our midst?
- Can we see present day connections between human sin and violence and the state of the natural world?
- How can we focus our understanding of repentance on our need for travel?

The next sections will examine the pollution side-effects of transport and then in the final section, how we can do Rich Living: Transport.

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## Study 3 – Health Factors Associated with Transport

Our means of travel, and how we structure our cities has drastic effects not only on climate but on our rivers, the air we breathe, our oceans, and the accumulation of debris and plastics.

Transport is not just a climate matter but also one of toxicity. We have only to look at London's air in December 1952 when over 4,000 people died of respiratory causes as well as being run over, as both pedestrians and drivers were blinded by the smog. Death and disease also massively increased in the following months. It is thought now the haze may have been sulphur dioxide, but soot particles, hydrochloric acid and fluorine were also contaminating the air. Transport was only partly to blame; the smog coincided with a cold weather event which increased the burning of coal. And buses burning diesel had just replaced an electric tram system. Nevertheless, this one famous event was a spur to environmental protection and the Clean Air Act of 1956. The River Thames had also by the late nineteenth century become a foul-smelling cesspool, biologically dead, and historically a source of cholera outbreaks. It is now one of the cleanest city rivers in the world.



*London Smog 1952*

London and the Thames are symbols of polluted cities everywhere. And much of it is now due to transport. First as steel is made by burning coal, and then as carriages and engines are fuelled by coal, oil or diesel. Or today, as planes and cars are fuelled by fossil fuels.

### **Air Quality and Health**

Today many major cities still suffer from considerable smog and pollution and low air quality, mostly from transport exhaust, and this is affecting the health of most people on the planet. Often the poor are most affected by the air that the wealthy have polluted. In New Zealand air pollutants are the result of burning diesel and petrol, resulting in particulate matter, nitrogen



dioxide, carbon monoxide, and other gases. These lead to cardiovascular and chronic respiratory conditions, some cancers and low birth weights. It is estimated by the HAPINZ study that 256 people died in New Zealand due to air pollution in 2006. Because these deaths happened one by one, and the causality is obscure in individual cases, there is no public commentary or knowledge. For more information see [Massey University Environmental Health Indicators NZ](#)<sup>1</sup>.

But pollution is not the only health impact. Noise, accidents, and fatalities are also caused by our cars, trucks and planes. Worldwide there are a staggering 1.2 million road deaths annually. In New Zealand the figure was recently over 350 people in one year. We have winding undivided roads and high-speed limits. Deaths have gone down since 1990 when the road toll was over 700. The lowest recorded number of deaths was 253 in 2013, but the numbers have been rising steadily since then. See [here](#)<sup>2</sup> for more detail.

The *Washington Post* ran an article pointing out the irony of the private motor car (Fred Hiatt, “[Why do we put up with a transit system that kills, maims and wastes hours of our time](#)”, Washington Post, Oct 20, 2019<sup>3</sup>). We tolerate carnage on the road when it happens one by one in cars. But if a public bus or train is delayed, or if there is even one fatality there is an outcry and an investigation. Conversely, when public transport and bicycles become the norm there are enormous health benefits for a population as well.

## Healthy means of travel

Walking or biking are the only very low carbon means of transport and they provide healthy exercise and time outdoors as well, all of enormous benefit to human health. Yet in New Zealand only 3% cycle to work. In Copenhagen, a model green city, the figure is over 40%. At the same time, however, bicycle injuries are increasing in New Zealand as new cyclists compete with cars on open roads,





and scooter riders compete on city streets. Dramatic structural changes are needed to ensure that cyclists and others using active or micro modes of transport can travel with the same safety and convenience as motor vehicles. It would be even better if cyclists and pedestrians had priority in the city. Fast-tracking these changes can have an excellent mitigative impact at many levels including climate.



### Some Health Facts

Switching short car trips for walking and cycling has major health gains, 18 July 2019 Radio New Zealand— <https://tinyurl.com/yygdemu8>

More than half our trips are less than 5km  
12% of trips are under 1km

Swapping cars for bikes or walking could add between 2 and 25 quality adjusted life years per 1,000 people

79% of all self-reported trips are made by car.  
Only half of us get enough physical exercise

Original study:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0219316>

## Transport, communities and urbanism

We think of transport as how we get to a place. But transport also influences how those places look and how we live in them. Developing transport changes the places it serves.

The current shape of Auckland has been much affected by roads. In the 60s and 70s motorway construction took over large tracts of land near the centre to make it easier for people to get to (and also to avoid) the CBD. Wellington has been less affected partly due to ongoing strong sentiment to maintain the existing town belt, urban grid and the Basin Reserve.

Most major cities in New Zealand are still building motorways that enable more and more distant daily commuting, making places that were country towns or weekend hideaways into daily commuting suburbs (Kapiti Coast, Snells Beach, Pukekohe). In Drury and Pukekohe there is the knock-on effect that housing is consuming highly productive volcanic soils that are the dominant source of New Zealand's fresh vegetable production. Public transport links to those places are also being provided but usually later and with less investment than the roads.



Sprawling development is car focused and resource-inefficient because efficient transport depends on density. Good forms of transport development contribute to a community's social capital. The unfortunate sprawl that we all know well is a form of "structural evil". When evil is a part of the structure of a society the individual is very hampered in terms of resistance to this, and in their ability to do things differently.

For instance, if I work somewhere that is inaccessible by public transport, I am forced to go on using the private car to earn a livelihood.

The NZ Government's National Policy Statement on Urban Development 2020<sup>4</sup> attempts to address some of these issues by requiring cities to zone for dense development. The goals are summarized in a poster graphic:

<https://www.mfe.govt.nz/sites/default/files/media/Towns%20and%20cities/npsud-a3-graphic.jpg>

Structural evil also produces what we call "wicked problems"; problems that are so densely interconnected and structural that they are hard to navigate or to solve, problems with multiple conflicting stakeholders. For instance, should we widen roads to meet demand of individual freedom, with all the attendant problems of noise and pollution, or should we add public transport that does not meet individual needs exactly, or bike-paths that may require years of



urban works and the felling of trees. In all these options for urban planners the shape of the future is hard to gauge. Advocates for bikes and other active modes like to point out that “tactical urbanism” changes can be made to test ideas quickly and cheaply; you can’t build a temporary motorway but you can make a temporary cycleway with a few road cones or concrete planters.

Greta Thunberg says - “we can’t solve our present problems within our societies as they are. Something has to change”. Greener options are emerging, and just as the

motorway model enables development sprawl, well designed public transport can enhance focused development. Focusing along inner transport corridors means less disruption to the urban fabric and more respect for the value of productive land outside the city.

It isn’t easy to think of transport as a development tool. For example, discussion of new public transport modes is often framed in terms of the quickest way to the destination (“to the airport”). But another effect of a new transport line will be to serve the areas along the route. Communities are more likely to develop where there is easy access.

Urban planners sometimes talk about “transport-oriented development” but maybe we should think of “development-oriented transport”? How can transport choices promote liveable and sustainable communities for the future?

## Travel and connection

Travel also connects us and thus has a communal or psychological health benefit as well. Turning off a little used bus route might have a huge impact on elderly people with no other means of transport and no other venue for socializing. They spend all their days stuck in small houses not seeing anyone. The difference between having a bus or no bus might for some be despair, and increasing social isolation for the poor.



### Read: Numbers 35: 1-4

Numbers has a surprising stipulation that cities for the 'Levites be built with a green space around them.' Jews have interpreted this to mean this was a way of ensuring that city dwellers do not become alienated from the land. See, for instance, Jeremy Benstein, "Urbanisation and Land Use: A Biblical Model" <https://www.myjewishlearning.com/article/urbanization-and-land-use-a-biblical-model/>



Even in ancient times, then, there was a problem of alienation for those who lived in cities. In the New Zealand context, we can see that one of the things which makes Wellington unusual is its Town Belt. And in Christchurch the Botanical Gardens create a green haven in the city and along the river. In Auckland, there is less access to green spaces because roads have been prioritized over a green belt in the city, although there is Cornwall Park, Albert Park, the Domain, and the Waitakere Ranges. Health, including spiritual and mental health, depends on access to these green areas. The structures of urban living therefore do matter a great deal to health.



### Activity

- I have tried biking to work along Auckland's northwestern motorway bike-path, and while the path is good the fumes from cars are considerable. I have also tried busing, but Auckland's Inner Link bus likes to sit and wait for ten minutes at a time along the route. Try to take a different method of transport to work one day. Note the differences in terms of health, exercise, cost, contact with pollutants and so forth. How could you fix the transport to work better for you and for others?
- Do you have any of the following available in your circle of friends, family, or church: bikes, e-bikes, or a car or van for sharing?
- Challenge yourself or your group to eat local or buy NZ made for a month.



## Watch

Videos of some climate change initiatives:

<https://www.mfe.govt.nz/climate-change/we-all-have-role-play/videos-of-climate-change-initiatives>

Helen Clark on the Sustainability Goals and how Auckland could improve Aug 30, 2019

<https://www.stuff.co.nz/environment/climate-news/115366165/auckland-could-do-more-on-sustainability-and-climate-action-says-former-pm-helen-clark>



## Questions for discussion:

- How can we think more deeply about the pollution budget of the transport we use?
- What can we personally do to access transport in a greener way?
- What do you think are the duties of a Christian if civil governments declare a climate emergency? How should we be contributing to the solution?
- How can we contribute to better urban planning and design of both housing and separated roadways?

### References:

- 1 Environmental Health Indicators New Zealand (EHINZ) - Transport, Massey University  
<http://www.ehinz.ac.nz/indicators/transport/>
- 2 <https://www.ehinz.ac.nz/indicators/transport/about-transport-and-health/#Howdoestransportaffecthealth>
- 3 Fred Hiatt, "Why do we put up with a transit system that kills, maims and wastes hours of our time", Washington Post, Oct 20, 2019  
[https://www.washingtonpost.com/opinions/why-do-we-put-up-with-a-transit-system-that-kills-maims-and-wastes-hours-of-our-time/2019/10/20/669f25e4-f1cc-11e9-89eb-ec56cd414732\\_story.html](https://www.washingtonpost.com/opinions/why-do-we-put-up-with-a-transit-system-that-kills-maims-and-wastes-hours-of-our-time/2019/10/20/669f25e4-f1cc-11e9-89eb-ec56cd414732_story.html)
- 4 NZ Government National Policy Statement on Urban Development 2020  
<https://www.mfe.govt.nz/about-national-policy-statement-urban-development>







## Discussion:

- What personal plan could you manage towards making your transport more green?
- Can you think of any advantages of these changes as well as some of the possible hardships involved?
- Has your household considered EVs and/or solar power generation?

## Steve Muir: A long term bike-user explains

Steve says: In the early 2000s I realized that transport was the ‘low hanging fruit’ in terms of being able to achieve the most environmental gains for the least discomfort to my lifestyle. Biking is fun, fast, cheap, healthy, and allows more social interaction, and so has long been my transport of choice. I also choose to live in the central city where work and leisure activities are more easily accessible by bike, but I still used a car more often than I wanted. I did an analysis of the car journeys that I made and found that most of my small car journeys was for when I was carrying loads or multiple small kids, and that was too difficult to do on my bicycle.

After a bit of research, I built my own bike trailer and was amazed at how easy it was to carry my bass guitar and amp, my shopping and my kids around. I was so impressed I began making cycle trailers as a hobby business and after fifteen years, have made over 500 trailers for all manner of different load-carrying tasks. I ran a supermarket challenge for two years demonstrating



*Steven with a load of scrap metal in his home-made cargo bike, off to the metal recycler*



*Cyclists in the supermarket challenge*



*Oxford Terrace Baptist Church hosting the bike trailer workshop*

that bikes were faster and more fun than a car for collecting a week's worth of groceries even when carrying two young children. Oxford Terrace Baptist Church now hosts an annual workshop where people can construct a wooden trailer for only \$50.

Many people struggle to afford to buy a bike or get their bike repaired when it breaks down. To overcome this barrier, I have been involved in starting

a couple of free bike maintenance groups, the latest one being the Aranui Bike Fixup based at the Breezes Road Baptist Church. These have been very effective at repairing, restoring and giving away thousands of bikes and it is a great way to connect to the local community.

Going on holiday was another task that felt too hard to do by bike, but I developed a trailer capable of towing a kayak and have had several very enjoyable week-long holidays with a group of friends towing our kayaks by tandem bikes over Arthur's Pass and completing a fossil fuel free version of the Coast to Coast (to Coast). The tandems are used to pick up half the team after the mountain walk and kayak legs of the journey.

I choose not to go on regular overseas holidays and suggest to others to go very occasionally and stay for a long period of time in one place to get to know the different culture well, rather than passing through lots of places quickly. The South Island still has a very long list of places I would like to explore that I would likely enjoy every bit as much as overseas locations.



*Antoine, Priscilla and Steve near Arthur's Pass*

I have also provided electric bikes to nine Baptist church pastors around Canterbury so they can make more journeys more easily by bike and model sustainable transport habits to their congregations. This has been very popular and resulted in others buying their own electric bikes for regular commutes that are too hard to do by conventional bikes. See: <https://baptistmag.org.nz/on-your-bike/>

## Post Pandemic

The COVID-19 crisis and danger of transmission on crowded public transit has prompted many world cities to expand active mode initiatives. This includes tactical (quick short term) and long-term initiatives. Paris was already moving in this direction and has dramatically expanded plans.

<https://www.forbes.com/sites/carltonreid/2020/04/22/paris-to-create-650-kilometers-of-pop-up-corona-cycleways-for-post-lockdown-travel/#4039c61f54d4>

London also has significant schemes partly aiming to make up for reduction in public transportation capacity with social distancing.

<https://www.london.gov.uk/city-hall-blog/five-sustainable-ways-were-helping-get-london-moving>

There are challenges to making these advantages available to all, particularly in societies with more visible minorities – see BBC article about challenges and opportunities. Cycling is often regarded as an elitist toy or (like public transport) something only done by those who can't afford better, not a mainstream option. But countries such as the Netherlands have been able to bring cycling into the mainstream.

<https://www.bbc.com/worklife/article/20200724-will-covid-19-make-urban-cycling-more-inclusive>

In the Level 4 lockdown Auckland took a few tentative steps toward added cycle amenity (17km of temporary improvements) most of which were



*Julie Chamberlain on the OTB electric bike*

quickly reverted on the change from level 4 to 3. A notable exception is Queen Street where planned permanent change is being brought forward. But it all looks a bit timid compared to Paris and London.

## Connections and causality

We get a lot of push back at A Rocha against our green initiatives and especially against our climate change policies, and some of you might be sympathetic to this view point. We always answer that we go green because it is important anyway, because it is a more faithful way of living. This is not only because we can see an immediate connection between what we do and the survival of the planet. We argue that even if you don't believe in climate change it is still healthier to live in a city with cycle ways and green spaces, rather than the congestion and pollution caused by cars and trucks.



### Reflect:

- What would you respond to a climate-denier, or someone who is arguing that humans have not caused the present crisis?
- Now that we have all lived through a lockdown, what advantages did you see in our more isolated, less driven world?
- Did it enable more inner space, more connection to nature?
- Did you notice aspects of nature that were regenerating even in that short time period?
- What is your community doing to fast-track greener means of transport?

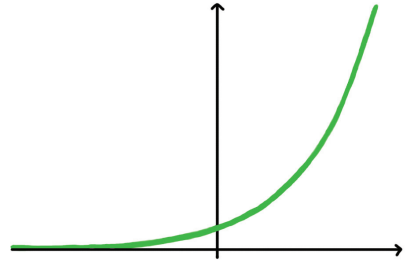
## The Speed of Change: Moving to Transport as a Service (TaaS)

How fast can we change? We may be surprised at how quickly our technologies will change. Several thinkers have pointed to the exponential graph. When you are sitting on the flat bottom part of a graph you don't realize how everything will suddenly speed up as you enter the steep part of



the curve. For these thinkers this is exactly where we are sitting in terms of many changing technologies around transport. We tend to project into the future in our minds on linear graphs, but the reality may be very different. The COVID-19 crisis has given us a vivid example of this thinking. Many governments were not able to project up the exponential curve of COVID-19 cases and deaths and failed to act in time, or failed to prepare.

RethinkX.com gives the example of New York in 1900-1913. A photo taken in 1900 showed a street with horse-drawn carriages and one car. Thirteen years later the same photo was taken and there were cars with only one horse drawn carriage (see the images from 0:20 to 1:10 of this video <https://www.youtube.com/watch?v=2b3ttqYDwF0>).



Similar very fast changes could take place in terms of the organization of the electricity grid (fast conversion to renewables, especially grid scale wind and solar PV), the way that people get around (more EVs and bicycles, and more Uber type trips, or TaaS). We might be frustrated by how slowly cycle lanes are being constructed but there has been a historic level of movement in the last few years and we are likely to see an increase in the rate of construction in the near future. This model relies on disruption of the status quo by new technologies as a way of changing quickly. You might reflect on the effect of Uber on our habits and intentions. Uber for all its faults, has disrupted life as usual in the transport realm.

*“RethinkX is predicting an overnight sensation that will be no less transformative than the Model T’s erasure of the horse and buggy, the printing press’s impact on literacy and one modern tech gadget’s remaking of communication.” — USA TODAY, MAY 2017*

Much of the conversion will take place for economic reasons, they argue. Quite suddenly it will no longer be economic to maintain private cars, they predict.



*We are on the cusp of one of the fastest, deepest, most consequential disruptions of transportation in history. By 2030, within 10 years of regulatory approval of autonomous vehicles (AVs), 95% of U.S. passenger miles travelled will be served by on-demand autonomous electric vehicles owned by fleets, not individuals, in a new business model we call “transport-as-a-service” (TaaS). The TaaS disruption will have enormous implications across the transportation and oil industries, decimating entire portions of their value chains, causing oil demand and prices to plummet, and destroying trillions of dollars in investor value — but also creating trillions of dollars in new business opportunities, consumer surplus and GDP growth.*

Rethinking Transportation 2020-2030, p6 - [https://static1.squarespace.com/static/585c3439be65942f022bbf9b/t/59f279b3652deaab9520fba6/1509063126843/RethinkX+Report\\_102517.pdf](https://static1.squarespace.com/static/585c3439be65942f022bbf9b/t/59f279b3652deaab9520fba6/1509063126843/RethinkX+Report_102517.pdf)

## Justice and transport

But will all of this be Rich Living? The key word in the above scenario is disruption. The thinkers behind RethinkX claim that this revolution will benefit the elderly and marginalised as much as the middle classes. It will become normal to call for your very low-priced trip to your destination. Everyone will be doing it and those who are currently excluded will be more able to afford the service and less stigmatized for not having their own car or for no longer being able to drive. The green spaces, and better air quality will affect everyone equally. However, there have been few points in history where equality and justice have been achieved as an inadvertent byproduct of change. And in this case the very rapid pace of change will undoubtedly alienate many, and will have repercussions for justice which NGOs

and people of faith will need to monitor closely. One of the biggest disruptions, at least in the short run will be in the area of jobs. While many new jobs will be created there will also be a time period when people who used to drive trucks and taxis and trains will no longer be needed. COVID-19 may well also disrupt these disruptions, with potentially



permanent change in patterns of commuting altering the economic case for urban public transport and autonomous vehicle networks. These modes depend on patronage and localized heavy use. It is not obvious what transport technologies will be best suited to the “new normal”.



## Air Travel

Air travel will be the last means of transport to become carbon neutral, but some carriers are already moving in that direction, although COVID-19 has disrupted this industry more than almost any other. In New Zealand, however, domestic air numbers are bounding back, without tourists. Air travel receives a lot of attention, perhaps because it uses up an individual’s carbon budget so quickly (a return flight to London from New Zealand can double a person’s carbon use for the year). To put this in perspective air travel is only 2% of the world’s carbon expenditure, though taking into consideration the effects of GHGs at high altitude can double this figure.

One way forward for individuals is to neutralize and make sustainable our ordinary everyday living first, while also travelling by air, especially overseas, less often. At the same time we can “pay” the stated carbon cost of whatever air travel we do, while trying to minimize, or at least make good use of any air travel for the purposes of pleasure alone (Callister and Rae<sup>2</sup> among others, however, have noted that the cost of carbon should probably be at least 5 times the present value). NGOs and businesses can aim to minimize travel and make better use of cheap and easy online conferencing facilities already available.

Some people believe that the status of our present emergency requires that we stop all but emergency air travel. This is something for discussion, how would you feel about this? The decimation of airlines coming out of the pandemic may well answer this question for us. Air travel in the future may be much more costly. Many airlines will have gone bankrupt. It will never be the same as it was before January 2020.



Humans will always need some face to face contact to maintain relationships and diminish hostilities. Flights which cannot be neutralized can be offset. Air New Zealand offers an instant opportunity at the portal to offset air travel domestically and internationally. Another highly recommended offset service is Climate Stewards (<https://www.climatestewards.org/>).

## Jet Blue

The US airline Jet Blue has recently announced it is going carbon neutral. Of course, it doesn't mean it has found a way to fly without using fossil fuels, alas. It has bought highly efficient planes and reduced emissions wherever possible. It is also investing the carbon cost of its operations in trees and other conservation projects. See, "Jet Blue plans to go completely carbon neutral on all U.S. flights," Washington Post, Jan 6)

<https://www.washingtonpost.com/travel/2020/01/08/jetblue-plans-go-completely-carbon-neutral-all-us-flights/>

Callister and Rae<sup>3</sup> have also written a very informative article describing the various future options for airline fuel and their advantages and drawbacks. Many technologies are in the pipeline at the moment. See references at the end of the previous study.

## Tourism

In New Zealand, of course we have traditionally relied very heavily on tourism with almost as many people visiting the country each year as live here permanently, placing at times an enormous burden on our environment, but also bringing in much needed income. One of the outcomes of the COVID-19 pandemic may be the curbing of this industry.

But for those tourists who do come, how can we encourage more climate-friendly methods of travel. Callister and Rae<sup>4</sup> argue that buses should be one of the strategies for low carbon travel around the country. Their other recommendations are:

- An overhaul of the bus-network infrastructure. Buses should be readily accessible and so should amenities at bus interchanges.
- More sustainably powered buses
- Restored overnight trains from Auckland to Wellington (as is happening in Europe (<https://www.bangkokpost.com/travel/1961835/europes-fading-night-trains-win-reprieve> )
- Train network in the Auckland, Tauranga, Hamilton triangle
- A big push to develop city-wide cycle paths in cities
- Easily accessible EVs for long range hire

New Zealand will also have to find a way to “own” at least some of the carbon expenditure of tourists arriving on our shores. Other alternatives to world travel may emerge if the carbon cost proves to be too much. The international experience could be replaced by immersive Virtual Reality experiences accompanied by location appropriate Uber Eats. You could do this yourself right now using Google Earth. You could also ask friends from other parts of the world to share their culture and their hometowns with you.



## How else can governments help to make the switch to the zero carbon economy?

Rod Oram suggests some ideas that are worth immediate action:

- ‘Fee-bates’ to incentivise a shift from higher emission cars to lower emission ones and electric vehicles. The greater a car’s emissions, the higher tax on it. The government recycles the revenue into rebates for owners of cars with low or no emissions.
- Government and business allying with one or two major electric vehicle manufacturers to make the country a development market.
- Working with LanzaTech on drop-in hydro-carbons. These are synthetic substitutes for conventional diesel and petrol for heavy vehicles, the existing car fleet and aircraft.
- Government working with Air New Zealand, the tourism sector and Enviro-Mark (the Landcare Research subsidiary) to develop carbon-neutral tourism. Under the programme, international travellers would voluntarily offset the carbon from their air travel and other activities. For example, at \$20 per tonne of carbon, the offset per passenger on return flights between London and Auckland would cost \$120, and Shanghai to Auckland return would cost \$60. For \$250, say, a tourist could completely offset the carbon expended by their flights and activities by using Enviro-Mark’s carbon calculator, and then buying credits in the local native bush regeneration projects’ Enviro-Mark measures.

*Rod Oram, Three Cities: Seeking Hope in the Anthropocene.*<sup>5</sup>

We can have a better economy and a better climate, thanks to dramatic shifts in the world economy that began some five years ago. “...it is already cheaper to build and run high quality, compact urban environments... than it is to build and run sprawling, inefficient cities dependent on fossil fuels.”

Auckland is making the biggest efforts to become a more compact, higher density city with good public transport. But its goal is to only reduce greenhouse gas emissions from 7 tonnes per person per year to 3 tonnes by 2040. In contrast, today Vancouver is already down to 4.5 tonnes, Stockholm 3.8 tonnes and Copenhagen 2 tonnes - with all the cities enjoying the quality of life and efficiency that brings.

*Rod Oram, Missing the Big Picture.*<sup>6</sup>



## Read: Psalm 1, 2 Corinthians 10, Ephesians 6:10-20

Meditate on Psalm 1 in light of these visions for the future of transport. What is the way of righteousness? What is the way of wickedness?

Read the NT passages about the armour of the Spirit and the spiritual forces of wickedness. There is a lot of hidden wickedness and structural evil in the transport sphere. Discuss what these are in the local and international context, and ways that ordinary Christians can overcome and resist this evil.



## Activities

Check out your local city or district plan. Are there initiatives underway to increase cycle or walkways? Get involved and ask others to contribute, and request a change to more sustainable transport options.



## Discussion

- What carbon reduction measures are being used in your community?
- What needs more funding?
- Have you changed your habits around transport recently?
- Do you plan to change your habits in the next three years?
- Which of the two options above do you believe is necessary for air travel?

### References:

- 1-4 Callister, Paul and Rae, Wallace. Can New Zealanders keep flying and reduce their carbon footprint? In Renewable Energy, Thought Leader. June 18, 2019. <https://pureadvantage.org/news/2019/06/18/can-new-zealanders-keep-flying-while-reducing-their-carbon-footprint-1-3/>
- 5 Oram, Rod. Three Cities: Seeking Hope in the Anthropocene. BWB Texts Book 46, Bridget Williams Books, 2016.
- 6 Oram, Rod. Missing the Big Picture. Sunday Star Times, Sept 21 2014



## Conclusion

Humans are wanderers and transport allows us to move more easily. There is a great deal of good in travel and humans have always travelled for spiritual reasons as much as for leisure or holidays. But too much travel is now done for slight gain, or for trivial reasons, or because we are a part of cities without proper alternatives. Transport is a visible and symbolic marker of our over-consumption. Taking personal responsibility for our transport expenditure is a part of the overall solution. It is also the most transparent action that others can see and emulate. As Greta Thunberg says, “nobody is too small to make a difference.”

At the same time the big changes are going to happen as governments and industry bring huge interventions in the coming years. Only governments can demand that we not use our cars one day a week. Only governments can bring in incentives for the purchase of solar panels and e-vehicles. Governments and local councils can change the shape of our cities, making them more accessible to bike users of varying confidence. Governments must solve the “wicked problems” associated with transport.

Churches are also a part of the solution. The gospel is a reminder that there is always hope, that God has incarnated even in our very broken world, and that we are called upon to be God’s presence in the world today. Churches can organise, educate, bring people together, comfort and console, and work with partners to change local communities for the better. Christian theology can contribute by countering some of the harmful eschatological and gospel emphases of the past, and by presenting again and again the deeply ecological message of the Bible and the cosmic Christ, incarnation of Wisdom.

As this booklet was being written the world was hit suddenly with the COVID-19 crisis. Our streets have been emptied of cars. Plane trips are down 95% or more around the world. We have ceased most of our human activity and miraculously the skies have cleared above our major cities.

Who knew that we could drastically decrease our emissions and clear the air so quickly? It has taken an unprecedented tragedy, and a huge death toll. The economic toll will be huge, and many have speculated that there will

be a significant toll of human death and misery that is caused by the lockdown of the economy and will extend for many years. Nevertheless, the virus has achieved what seemed to be



impossible: the pausing of human activity long enough for us all to take stock. We are engaging personally and collectively in a long period of reflection. Can we live more like this in the future? Can we keep some of the gains we have discovered in this lockdown? Although we worship a god of healing, we might also interpret this pandemic as an almost necessary evil. We needed to stop. And no amount of clamour was getting us to that point before COVID-19.

We might all stop to reflect on how we can live more sustainably, now that we have been forced to pause. How can we salvage some of the gains from this tragedy? And can we pause and ask that God inspires us anew with a direction for the future and leaders who might take us there.

This is a rapidly changing situation. For instance see the Climate Commission Advice of February 2021. <https://www.climatecommission.govt.nz/get-involved/our-advice-and-evidence/>  
Up to date information can be accessed from the Climate Commission at <https://www.climatecommission.govt.nz>



The existing Western lifestyle is unsustainable – our consumption habits impact on the wellbeing of our human and non-human neighbours. But Christian faith communities have the potential to be agents of hope.

This booklet is one of five in the Rich Living series (*Climate Change, Water, Food, Waste, Transport*). Designed for small groups, each booklet consists of four studies designed to assist communities make sustainability integral to their lives of faith.