



# 2 DEGREES

*Climate Justice or Climate Change?*

NO COIN'S  
IT'S CHANGE  
I NEED

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A **STUDY GUIDE** BY KATY MARRINER



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Climate change is the most pressing issue of our time – it is the biggest threat to human health and the health of the planet. *2 Degrees* (2013), a feature documentary produced by Jeff Canin and Ange Palmer for Green Turtle Films, explores climate change through the prism of climate justice. The documentary identifies the causes, and exposes the costs, of climate change. In exploring the failure of the 2009 United Nations Climate Change Conference in Copenhagen to respond to the crisis, *2 Degrees* promotes the importance of people power. The film's focus on the emergence of community-led solutions offers an inspiring call to action for audiences around the world.

*2 Degrees* has a running time of 90 minutes. The documentary's extras have a running time of 53 minutes.

*2 Degrees* is available on a two-disc DVD set.



## Curriculum links

*2 Degrees* is suitable viewing for students at all secondary school year levels.

For students in Years 7–10, it has relevance to units of work in the learning areas of English, Geography, History and Science, and addresses the general capability of Critical and Creative Thinking and the cross-curriculum priority of Sustainability.

In The Australian Curriculum: **English**, students should study texts that explore ethical and global dilemmas in real-world settings. It is recommended that students have access to informative texts that represent a synthesis of technical and abstract information (from credible/verifiable sources) about a wide range of specialised topics. *2 Degrees* provides an opportunity for students to explore and reflect on their personal understanding of climate change as an issue of global significance. In addition, students can draw on *2 Degrees* to create a range of imaginative, informative and persuasive texts.

In The Australian Curriculum: **Geography**, students learn about the significance of the environment in human life and the important interrelationships between humans and the environment. The environment supports and enriches human and other life. Management of human-induced environmental change requires an understanding of the

causes and consequences of change, and involves the application of geographical concepts and techniques to identify appropriate strategies. In Geography the concept of sustainability is about the capacity of the environment to continue to support our lives and the lives of other living creatures into the future. Through its exploration of climate change and climate justice, *2 Degrees* provides a resource for students to develop an understanding of sustainability and an understanding of the causes of unsustainability.

In The Australian Curriculum: **History**, students learn about the background to environmental awareness and the intensification of environmental effects in the twentieth century as a result of population increase, urbanisation, increasing industrial production and trade. Students are required to explain the responses of governments and organisations to environmental threats and evaluate the effectiveness of international protocols and treaties. Students develop an understanding of the growth and influence of the environment movement within Australia and overseas, and developments in ideas about the environment. Significant events and campaigns that contributed to popular awareness of environmental issues are investigated. *2 Degrees* provides a resource for students to examine both climate change and climate justice from a historical perspective.

The Australian Curriculum: **Science** provides opportunities for students to develop an understanding of important science concepts and processes, the practices used to develop scientific knowledge, of science's contribution to our culture and society, and its applications in our lives.

The curriculum supports students to develop the scientific knowledge, understandings and skills to make informed decisions about local, national and global issues and to participate, if they so wish, in science-related careers. *2 Degrees* is relevant to units of work within the sub-strand of the Earth and Space Sciences. Through this sub-strand, students explore the ways in which humans use renewable and non-renewable resources from the Earth.

*2 Degrees* can be used as a resource to address The Australian Curriculum cross-curriculum priority: **Sustainability**. Sustainability addresses the ongoing capacity of Earth to maintain all life. Education for sustainability develops the knowledge, skills, values and world views necessary for people to act in ways that contribute to more sustainable patterns of living. It enables individuals and communities to reflect on ways of interpreting and engaging with the world. Sustainability education is futures-oriented, focusing on protecting environments and creating a more ecologically and socially just world through informed action.

The Australian Curriculum general capability: **Critical and Creative Thinking** recognises that students need to learn to generate and evaluate knowledge, clarify concepts and ideas, seek possibilities, consider alternatives and solve problems. Responding to the challenges of climate change posed in *2 Degrees* provides opportunities for students to be creative, innovative, enterprising and adaptable.

For students in Years 11–12, *2 Degrees* has relevance to units of work in Australian Politics, English, Environmental Science, Geography and Global Politics. Teachers should access the senior curriculum syllabus documents for their state or territory.

Teachers are advised to use the links referenced in the Resources section of this study guide to access curriculum units and lessons about climate change.

## Introducing *2 Degrees*

The war on climate change has two major fronts: the fight against global deforestation and the battle to stop the burning of fossil fuels. Lose either of these battles and we lose the war. *2 Degrees* is the story of the top-down and bottom-up efforts being made to address climate change. On one hand, the film lays bare the political machinations of the international climate change negotiations. On the other, it examines climate solutions being driven by local grass-roots organisations.

The top-down approach follows the endeavours to have emissions from deforestation included in the new United Nations Climate Change Agreement (UNCCA). The bottom-up contrast looks at Port Augusta in South Australia, and the struggle by the local residents to have the coal-fired power stations on the edge of their town replaced with solar thermal and wind energy.

At the United Nations Framework Convention on Climate Change (UNFCCC) in Bali in 2007, it was finally accepted that the preservation of forests plays a crucial part in the solution to climate change. The 194 nations of the United Nations (UN) had only two years before the UNFCCC in Copenhagen to negotiate a new agreement to curb global warming. But progress was painfully slow. At the core of the debate was how to preserve the world's tropical forests and their ecological services, so vital for the planet, without hindering the urgent development of the poorest nations. Everyone agreed that the forests must be assigned their proper value and included in the new UN agreement, but the method to achieve this is complex and highly controversial.

*2 Degrees* captures the action in the conference rooms and corridors of the international climate change negotiations leading up to and at Copenhagen, and documents the rising heat as ideologies and vested interests collide. Scientists outline the stark truth that none of the industrialised countries are committing to the cuts in emissions the science demands. Small island states, whose future is bleak with a temperature rise above 1.5 degrees Celsius, watch with mounting disbelief as the rich nations decide that a target of 2 degrees is all they are willing to accept.

As the world waits in hope for a new dawn on climate change, *2 Degrees* reveals the chaotic failure of the negotiations in Copenhagen. It is extraordinarily clear that we cannot wait for governments to lead the way. So if commitment to act won't come from above, perhaps the voices and actions of communities will bring the revolution that is needed. *2 Degrees* takes to the streets of Port Augusta, a small Australian town, and follows the community's passionate efforts to replace the coal-fired power stations with solar thermal and wind power.

Led by the formidable eighty-year-old Mayor Joy Baluch, residents of Port Augusta form the Repower Port Augusta Alliance and organise a community vote. When the town votes overwhelmingly to support renewable energy and make it the first major solar thermal site in the southern hemisphere, the Australian Youth Climate Coalition decide to march over 300 kilometres from Port Augusta to Adelaide to deliver the community vote to State Parliament. It is vindication that people power can and will make a difference in the transition to a positive, sustainable future.

# Director's Statement

Whatever you think about climate change, the issue of whether or not to preserve the last great tropical forests is beyond doubt, but wrangling still takes place as to how to reconcile the different political, social and economic interests that hold us back. The wealth of resources and ecosystem services that the forests give us is far greater than any short-term benefit from their destruction; services that we cannot do without: carbon sequestration, erosion control, flood mitigation, climate modification (rainfall and reflectance), local economics (harvesting and tourism), genetic resources, and food for our spirit and soul.

While the political issues of carbon generation, economic development and science have brought the UN negotiations to a standstill, the opportunity to move forward to keep the forests through actions at every level of society is still open to us.

From 2007 to 2009 there was increasing acceptance in most industrialised countries that climate change was indeed serious and needed immediate action. Climate change became an election issue, in Australia helping the Rudd Government get elected. Elsewhere the public demanded that governments take concrete steps to address it.

After Copenhagen, December 2009 – when world leaders showed unwillingness to implement immediate action – the voice of climate change deniers was given prominence by many major media outlets. Their unsubstantiated smoke screens fed the public's hope that climate change was not actually occurring, and drastic changes to our lifestyles would not be necessary after all.

Our film, *2 Degrees*, counters this wave of misinformation and reasserts the urgency for immediate action by both the public and governments. It highlights the value of protecting the tropical forests, a relatively easy way to reduce 20–30 per cent of global carbon emissions.

Copenhagen showed that most of the world's heads of state are unwilling to get ahead of public opinion. For this reason we have aimed the film at the widest possible audience, to educate and motivate people to demand more of their governments. There will be little progress until the public realise that to have change, we all need to change – and demand corresponding change from our governments.

Inducing guilt does not foster change. Raising awareness and consciousness does. By educating people about the cumulative nature of the carbon dioxide (CO<sub>2</sub>) pollution that is released and the need to reduce these emissions NOW and not by 2050, they may become more aware of their own personal carbon footprint. Our characters both educate and inspire carbon reduction choices.

This information is not conveyed in a heavy-handed lecture. The inspiration comes from glimpsing our characters' daily

lives and witnessing their dedication to finding solutions and achieving change, their unwavering commitment and the personal costs involved. The film and website provide direction to those wondering about what comes next and where their actions can be most effective.

Our crew was privileged to spend most of 2009 travelling globally to capture a fascinating view of these important historical events, as the developing world increasingly voiced its need to be supported in its response to the climate crisis. Most people hear about climate change filtered through the interests of their government and media they are dependent upon, but we pursued the story directly on the ground. It would be impossible for an audience to access this kind of awareness any other way. This is what makes *2 Degrees* so unique.



JEFF CANIN



**DAMIEN BEEBE FILMING  
DAN SPENCER AND  
LISA LUMSDEN**



## People power

What follows is a listing of many of the people featured in *2 Degrees*. Teachers and students may choose to add other names to the list.

### **PAULO ADARIO | SENIOR ADVISOR, GREENPEACE INTERNATIONAL**

Paulo Adario is regarded as a guardian of the Amazon. He has opened a Greenpeace office in the Amazon to fight deforestation and force sustainable solutions, and in 2012 he was recognised as a Forest Hero by the UN for his dedication to the protection of rainforests and the forest-dependent communities in the Brazilian Amazon. Adario is currently the Senior Forest Strategist for Greenpeace International.

### **PATRICK ALLEY | GLOBAL WITNESS**

Patrick Alley is co-founder and co-director of Global Witness. Since 1993, Global Witness has been campaigning to expose the economic networks behind conflict, corruption and environmental destruction.

### **PROFESSOR KEVIN ANDERSON | TYNDALL CENTRE FOR CLIMATE CHANGE RESEARCH UNIVERSITY OF MANCHESTER**

Professor Kevin Anderson is Deputy Director of the Tyndall Centre for Climate Change and adviser to the British government. Anderson has not flown for eleven years, does not own a washing machine, uses the stairs to get to his seventh-floor office, and is conscious of his carbon emissions every time he turns on a light or takes a train. His personal mission is to educate governments and the public of the need and opportunities to cut emissions today, and not put it off until 2030 or 2050.

### **JOY BALUCH | MAYOR**

Port Augusta's Mayor, Joy Baluch, was Australia's longest-serving female mayor. Blunt, passionate, and indefatigable, she fought for fifty years for her town, which she called 'the centre of the universe'. Baluch first entered local politics to have filters installed on the chimneys of Port Augusta's coal-fired power stations, which she believed were the cause of the town's high rates of cancer and respiratory illnesses. Baluch died in April 2013. Her legacy is acknowledged in the closing credits of *2 Degrees*.

### **DR AL BINGER | CLIMATE SCIENTIST**

Dr Al Binger currently serves as Energy Science Advisor for the Caribbean Community Climate Change Centre, and Science and Technical Cooperation Advisor to Alliance of Small Island States (AOSIS). Binger is also a representative of the AOSIS on the Technology Executive Committee of the United Nations Framework Convention on Climate Change (UNFCCC).

### **YVO DE BOER | EXECUTIVE SECRETARY UNFCCC**

Yvo de Boer was the executive secretary of the UNFCCC. De Boer's involvement in climate change policies began in 1994, when he helped to prepare the position of the European Union in the lead-up to the negotiations on the Kyoto Protocol. He resigned two months after the 2009 UNFCCC in Copenhagen to join KPMG as its Special Global Advisor, Climate Change and Sustainability.

### **ROMAN PAUL CZEBINIAK | GREENPEACE INTERNATIONAL**

During the 2009 UNFCCC in Copenhagen, Roman Paul Czebiniak was a Greenpeace Senior Policy Advisor on climate change and forests. He is now Conservation Director at the Center for Biological Diversity, where he oversees the center's major programs and works.

## **CLIVE HAMILTON | PROFESSOR OF PUBLIC ETHICS**

Clive Hamilton is Professor of Public Ethics at the Centre for Applied Philosophy and Public Ethics, and the Vice-Chancellor's Chair in Public Ethics at Charles Sturt University. He is a member of the Board of the Climate Change Authority of the Australian Government and is the founder and former Executive Director of the Australia Institute.

## **CONNIE HEDEGAARD | PRESIDENT COPENHAGEN UNFCCC**

Connie Hedegaard is a Danish politician and public intellectual who has been European Commissioner for Climate Action in the European Commission since 10 February 2010. On behalf of Denmark, she hosted the UN Climate Change Conference in Copenhagen 2009.

## **LASSE HEIMDAL | NORWEGIAN UNION OF OUTDOOR RECREATION ORGANISATIONS**

Lasse Heimdal is Chief Executive Officer in the Norwegian Union of Outdoor Recreation Organisations (FRIFO). FRIFO is involved in several processes to create outdoor life activity in urban and suburban areas. Heimdal has masters degrees in management and theology, and has been working as CEO and consultant in several NGOs and business companies. His observations on Norwegian society's response to climate change are also a direct reflection of Australian society. Transpose coal for oil and his comments apply equally to Australia.

## **JOY HYVARINEN | FIELD**

Joy Hyvarinen is an environmental lawyer and Executive Director of the Foundation for International Environmental Law and Development (FIELD). Before joining FIELD in 2007, Hyvarinen worked for the Royal Society for the Protection of Birds, focusing on biodiversity and UN issues.

## **ANNA KEENAN | ACTIVIST**

Anna Keenan is a passionate Australian climate change campaigner. Once active in the Australian Youth Climate Coalition (AYCC), after Copenhagen she began work for Greenpeace International. She suffered no long-term damage as a result of the climate fast.

## **RONNY JUMEAU | AMBASSADOR**

Ronny Jumeau is a Seychellois political figure and diplomat. He is currently the New York-based Roving Ambassador for Climate Change and Small Island Developing State Issues of the Republic of Seychelles. Jumeau was appointed to the UN in 2007 with the sole mandate of joining the fight against climate change. Jumeau claims his priorities are climate change, climate

change and climate change, as he campaigns to save his island home and the other small island states that are literally disappearing beneath the oceans.

## **TIM KELLY | CONSERVATION SA**

Tim Kelly is CEO of The Conservation Council of South Australia (Conservation SA), a peak body representing member groups whose main purpose is conservation and protection of the environment.

## **LARS LØVOLD | SOCIAL ANTHROPOLOGIST**

Lars Løvold is a social anthropologist and Executive Director of Rainforest Foundation Norway (RFN). His work has taken him to forest communities all over Brazil, and to those in Indonesia, Malaysia, Papua New Guinea and the Democratic Republic of the Congo. RFN advocates a rights-based approach to rainforest protection. They believe that the people, who for generations have developed their cultures and societies in balanced interaction with the highly complex yet vulnerable ecosystems of the rainforest, have fundamental rights to these areas.

## **XIUHTEZCATL MARTINEZ**

Xiuhtezcatl Martinez, a thirteen-year-old Indigenous environmental activist from Boulder, Colorado, came into the world through the Aztec culture on his father's side, and environmental activism on his mother's side. Martinez is the youth director of Earth Guardians, a non-profit environmental organisation. He is currently working on helping fight for a statewide ban on fracking. He gives presentations on fracking in schools and at conferences nationally, and also has developed and shown a presentation called EARTH, teaching about practical changes all people can make to ensure future generations enjoy a healthy, habitable planet. His work on climate change has led him to become a youth plaintiff against the state of Colorado and a federal plaintiff against the United States, filing law suits for not protecting the atmosphere.

## **ANDREW MITCHELL | GLOBAL CANOPY PROGRAMME**

Andrew Mitchell is founder and executive director of the Global Canopy Programme. Mitchell is a zoologist with extensive field experience in Asia, Africa and Latin America. He pioneered scientific exploration of forest canopies and co-founded NGOs such as Earthwatch Europe. He acts as an adviser to governments and international institutions, and is special advisor to the Prince of Wales' Rainforest Project.

## **CHRISTINE MILNE | AUSTRALIAN GREENS**

Christine Milne is an Australian Senator and leader of the Australian Greens.

## **GEORGE MONBIOT | JOURNALIST AND AUTHOR**

George Monbiot is an English journalist and author known for his environmental and political activism.

## **MARK OGGIE | BEYOND ZERO EMISSIONS**

Mark Ogge currently works for Canberra-based think tank The Australia Institute. He is former Operations Director at Beyond Zero Emissions.

## **KAY REYNOLDS | PORT AUGUSTA RESIDENT**

Kay Reynolds is a long-time resident of Port Augusta. Her awareness of climate change began when the trees on her property began dying in large numbers.

## **PHILIPPA ROWLAND | 100% RENEWABLES**

Philippa Rowland is now the Public Officer of Clean Energy for Eternity (CEFE), a community group acting as a catalyst to inspire practical community action on climate change.

## **ELLEN SANDELL | NATIONAL DIRECTOR AYCC**

Ellen Sandell was National Director at the Australian Youth Climate Coalition. She was Young Environmentalist of the Year in 2009.

## **ERIK SOLHEIM | ENVIRONMENT MINISTER, NORWAY**

Erik Solheim was a Norwegian politician for the Socialist Left Party. He was appointed Minister of International Development in 2005 and also Minister of the Environment in 2007, and sat in both offices until 2012.

## **DAN SPENCER | AUSTRALIAN YOUTH CLIMATE COALITION**

Dan Spencer is a community organiser and campaign manager with the Repower Port Augusta Alliance and the Australian Youth Climate Coalition. He also plays in a reggae band called Babylon Burning.

## **ACHIM STEINER | EXECUTIVE DIRECTOR UN ENVIRONMENT PROGRAMME**

Achim Steiner is Executive Director of the United Nations Environment Programme (UNEP). Before joining UNEP, Steiner served as Director General of the World Conservation Union from 2001 to 2006, and prior to that as Secretary General of the World Commission on Dams.

## **DAVYTH STEWART | GLOBAL WITNESS**

Davyth Stewart is now a Criminal Intelligence Officer with the Environmental Crime Programme of the International police Organisation, INTERPOL, and the Team Leader of Project LEAF (Law Enforcement Assistance for Forests), a forests and climate initiative to combat illegal logging and organised forest crime led by INTERPOL and the United Nations Environment Programme.

## **JENS STOLTENBERG | PRIME MINISTER, NORWAY**

Jens Stoltenberg is a Norwegian politician who was Prime Minister of Norway from 2000 to 2001, and again from 2005 to 2013. In March 2014, Stoltenberg was appointed by NATO's North Atlantic Council as Secretary General of NATO and chairman of the North Atlantic Council.

## **JAY WEATHERILL | PREMIER, SOUTH AUSTRALIA**

Jay Weatherill is South Australia's 45th Premier. A lawyer with an economics degree, he established his own law firm in 1995 and practised until he was elected as the Member for Cheltenham in 2002. Weatherill became Premier in 2011.

## **LEAH WICKHAM | GREENPEACE INTERNATIONAL**

Leah Wickham is a community activist and volunteer with Greenpeace. Wickham was invited to attend UNFCCC Copenhagen as a Pacific youth delegate on Greenpeace International's youth team.

## **BEN WIKLER | CLIMATE ACTIVIST**

Ben Wikler has been an American political campaigner and host of *The Good Fight* a podcast and radio program sponsored by MoveOn.org. He is now Washington Director at MoveOn.

## **DESSIMA WILLIAMS | UN AMBASSADOR GRENADA, CHAIR ALLIANCE OF SMALL ISLAND STATES (AOSIS)**

Dessima Williams is a Grenadian diplomat and former Ambassador to the UN from Grenada who was reappointed to the ambassadorship in 2008. Williams is also the founder and Director of the Grenada Education and Development Programme (GRENEDE).

## **LIZ ZYLA | PORT AUGUSTA RESIDENT**

Liz Zyla is a nurse and long time resident of Port Augusta. As a nurse, she witnessed the high number of people with chest diseases in Port Augusta, which the Mayor attributes to the pollution from the coal-fired power stations on the edge of town.

## Glossary

- **Atmosphere:** The gaseous envelope surrounding the Earth. The dry atmosphere consists almost entirely of nitrogen and oxygen, together with a number of trace gases such as argon, helium and active greenhouse gases such as carbon dioxide and ozone. In addition, the atmosphere contains water vapour, clouds and aerosols.
  - **Carbon dioxide (CO<sub>2</sub>):** The most abundant of the greenhouse gases, it is produced as a by-product of oil and gas production, burning fossil fuels and biomass.
  - **Carbon footprint:** A form of carbon calculation that measures the amount of carbon dioxide equivalent that a country, a business, an industry or an individual produces or is responsible for.
  - **Climate:** The long-term average weather of a region.
  - **Climate change:** Climate change is a term to describe the significant and lasting change in global or regional climate patterns that are largely attributed to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.
  - **Deforestation:** Those practices or processes that result in the conversion of forested lands for non-forest uses.
  - **Emissions:** The release of a substance – usually a gas, when referring to the subject of climate change – into the atmosphere.
  - **Fossil fuel:** Decayed plants and animals that have been converted to crude oil, coal, natural gas or heavy oils by exposure to heat and pressure in the Earth's crust over hundreds of millions of years are known as fossil fuels.
  - **Global climate:** Global climate is the average climate over the entire planet. The earth's global climate is changing.
  - **Global temperature:** Global temperature is the average surface air temperature over the entire planet.
  - **Global warming:** Global warming refers to an increase in the earth's surface temperature. The terms 'climate change' and 'global warming' are often used interchangeably.
  - **Greenhouse effect:** The greenhouse effect is a term that describes how natural gases in the Earth's atmosphere allow infrared radiation from the sun to warm the Earth's surface, but they also prevent much of the heat escaping from the earth's atmosphere. Human actions are increasing the concentrations of these gases, which are contributing to global climate change.
  - **Greenhouse gas:** Any gas that absorbs infrared radiation in the atmosphere. The Kyoto Protocol lists six major greenhouse gases, which vary in their relative warming effect. The six gases are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), HFCs (hydrofluorocarbons), PFCs (perfluorocarbons) and sulphur hexafluoride (SF<sub>6</sub>).
  - **Ocean acidification:** Increased concentrations of carbon dioxide in seawater are responsible for an increase in ocean acidity.
  - **Ozone layer:** The ozone layer shields the Earth from harmful ultraviolet radiation from the sun.
  - **Particulates:** Very small pieces of solid or liquid matter such as particles of soot, dust, fumes, mists or aerosols.
  - **Reforestation:** The planting of forests on lands that were once forests but had been converted to some other use.
  - **Relative sea-level rise:** The increase in ocean water levels at a specific location.
  - **Renewable energy:** Energy produced from renewable resources, such as wind, solar, geothermal energy and biofuels.
  - **Thermal expansion:** The increase in volume and decrease in density that results from warming water. A warming of the ocean leads to an expansion of the ocean volume, which leads to an increase in sea level.
  - **Two degrees:** A global temperature rise of 2 degrees Celsius (2 °C) is the current target for many of the industrialised countries in the UN's climate negotiations. It is generally believed that if the average global temperature rises more than 2 degrees Celsius above pre-industrial levels, 'dangerous climate change' will result.
  - **United Nations Framework Convention on Climate Change (UNFCCC):** The United Nations Framework Convention on Climate Change recognises that the climate system is a shared resource and provides a system for intergovernmental efforts to tackle the challenge posed by climate change.
  - **Weather:** The atmospheric condition at any given time or place. It is measured in terms of such things as wind, temperature, humidity, atmospheric pressure, cloudiness and precipitation.
- This glossary provides the definitions of many of the terms used in *2 Degrees*. A range of climate change glossaries can be found online. Teachers and students may also choose to create their own classroom climate change glossary.

Australian Government Climate Change Authority  
<http://www.climatechangeauthority.gov.au/reviews/targets-and-progress-review-11/>

BBC News Science & Environment  
<http://www.bbc.com/news/science-environment-11833685>

Climate Action Network Australia  
<http://cana.net.au/general-info/glossary>

Union of Concerned Scientists  
<http://www.climatehotmap.org/global-warming-glossary/a.html>

United Nations Framework Convention on Climate Change  
[http://unfccc.int/essential\\_background/glossary/items/3666.php](http://unfccc.int/essential_background/glossary/items/3666.php)

United States Environmental Protection Agency  
<http://www.epa.gov/climatechange/glossary.html>

Wikipedia  
[http://en.wikipedia.org/wiki/Glossary\\_of\\_climate\\_change](http://en.wikipedia.org/wiki/Glossary_of_climate_change)

WWF  
[http://www.wwf.org.au/our\\_work/people\\_and\\_the\\_environment/global\\_warming\\_and\\_climate\\_change/glossary/](http://www.wwf.org.au/our_work/people_and_the_environment/global_warming_and_climate_change/glossary/)



## Climate change

Climate change is a term to describe the significant and lasting change in global or regional climate patterns that is largely attributed to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels and land clearing. Climate change may be a change in the average weather conditions or a change in the distribution and increased strength and frequency of weather events.

The global climate has changed dramatically since the Earth was formed 4.5 billion years ago. However, geological evidence suggests that these changes occurred slowly over tens of thousands of years compared with the relatively rapid warming of the past 100 years. The World Meteorological Organisation records show that the first decade of the twenty-first century was the world's warmest decade on record.

The planet is experiencing increases in global average air and ocean temperature, widespread melting of snow and ice, and rising global sea levels. The extra heat in the climate system has other impacts such as affecting atmospheric and ocean circulation, which influences rainfall and wind patterns. Another serious impact of the increasing concentration of atmospheric carbon dioxide is ocean acidification. Scientists agree that the worst effects of climate change can largely be avoided if carbon dioxide emissions are reduced to an acceptable level.

Climate change is a global issue. It has the potential to adversely affect our environment, our communities and our economy unless we take immediate action to reduce our greenhouse gas emissions. This will require a transition from fossil fuels, like coal and oil, to cleaner and renewable forms of energy. We also need to become more energy efficient and to put a price on carbon emissions.



### » WHAT THE 2 DEGREES EXPERTS SAY

*What matters in terms of climate change, and really the only thing that matters in terms of climate change, is the total amount of emissions that we put out into the atmosphere over say the next hundred years.*

– Professor Kevin Anderson

*There's nothing more important than solving climate change. It threatens the existence of humanity. It's that serious.*

– Clive Hamilton

*This is not just about science. This is about losing everything we have.*

– Ronnie Jumeau

*Recent studies have shown in fact that if we don't curb our fossil fuel emissions and allow them to continue to increase this could lead to major losses in tropical forests.*

– Roman Paul Czebiniak

*The science relentlessly, carefully accumulates more and more evidence that it's happening, that it's worse than we thought and that it is going to be catastrophic.*

– Clive Hamilton

- The following video provides a simple explanation of climate change:  
<<https://www.youtube.com/watch?v=3v-w8Cyfoq8>>
- Watch the 2 Degrees DVD extra 'Voices on Climate Change'. 'Voices on Climate Change' offers a range of views on climate change.

## Climate justice

Climate justice recognises and addresses the fact that the developing countries least responsible for climate change will experience its greatest impacts. Climate justice calls for the implementation of policies and projects that address climate change and the systems that create climate



change. Without climate justice, environmental rights and human rights are compromised. Climate justice advocates the immediate and significant reduction of emissions by industrialised countries and the transfer of technology and finance to developing countries to enable their continued development along low-carbon pathways and to develop solutions that protect the most vulnerable from the impacts of climate change.

### » WHAT THE EXPERTS SAY

*We have to make ways to reduce our emissions to allow developing countries to keep developing and have a better quality of life.*  
– Professor Kevin Anderson

*We remain optimistic. We think there are enough ideas to get us out of the mess but only if we don't become captives to vested interests.*  
– Al Binger

*Deep cuts in emissions need to be taken by those who are responsible.*  
– Lars Løvold

*This is definitely not a level playing field, anything but. And this is something many developing countries have raised for the last decade or two but it doesn't seem to be changing.*  
– Joy Hyvarinen

*The more time passes, the more difficult the situation of the climate is and more people will be threatened. We are building the basis of a genocide.*  
– Paulo Adario

## Two degrees limit

Many industrialised governments have agreed to limit warming to 2 degrees Celsius (2 °C) above pre-industrial levels. This is the global average temperature rise they believe we need to stay under to avoid the catastrophic effects of climate change. However, climate scientists predict that an increase of only 1.5 °C will result in the disappearance of small island states and coral reefs. Scientists argue that current greenhouse gas emission pledges by the industrialised countries ensure that the Earth is on its way to a 4 °C rise by the end of this century.

### » WHAT THE EXPERTS SAY

*We have reduced agricultural land, we have destroyed a lot of it, we have reduced biodiversity, we have overfished, we are going into this with our planet in a very bad state of repair.*  
– Al Binger

*Well, we're looking for very much a global agreement that puts the world on a two-degree target.*  
– Bryan Smith

*We are living on the front lines of climate change. As you know the planet is now 0.8 degrees warmer from its pre-industrial days and at that level of heat, a large number of our islands are already experiencing significant damage. Some are going under the sea. Some are losing their fresh water supply. Others are losing their infrastructure on their coastal areas because of unusual weather patterns, particularly hurricanes. Two degrees is completely untenable for us.*  
– Dessima Williams



- The 2 Degrees Project is a WWF initiative. The aim of the project is to educate people about the need to limit increases in global temperatures. Visit the 2 Degrees Project online at <<http://2degreesproject.com.au>>.

## Before and after viewing activity

Teachers are recommended to ascertain student knowledge and understanding of climate change prior to viewing *2 Degrees* and to revisit this discussion after a screening of the film.

### » TASK A: KWL

**KWL** is a thinking tool. **K** = What I know. **W** = What I want to know. **L** = What I learned

See Item 1 on page 12.

### » TASK B: MAKING A PREDICTION

Before viewing *2 Degrees*, ask students to describe Australia's current climate. After viewing *2 Degrees*, ask students to predict what Australia's climate will be like in 2050.

### » TASK C: MAKING HEADLINES

Ask students to find newspaper headlines about:

- global weather
- global climate
- climate change
- climate justice

Use these headlines to create a climate change discussion board. Spend time as a class discussing the significance of the headlines.

Ask students to write the headlines about global weather, climate, climate change and climate justice that will feature in the newspapers in 2050. Display the future headlines on another class notice board. Spend time as a class discussing the significance of the headlines.

## Discussing *2 Degrees* in the classroom

*2 Degrees* consists of two parts. **Part 1:** The top-down political approach examines the political struggle to get a legally binding agreement in the UN climate change negotiations. **Part 2:** The bottom-up community response documents the community action of individuals who have decided that they cannot wait for governments to act.

- Students could compile a data chart while viewing *2 Degrees* to record information about the causes, impacts and responses to climate change.

See Item 2 on page 13.







## » PART 1: THE TOP-DOWN POLITICAL APPROACH

*It is often easy to forget about big issues such as climate change as we go about our daily lives. Living in the industrialised world we are so sheltered from many of the direct consequences, and although most of us understand that climate change is the biggest threat humanity has ever faced, we don't really know what we can do to help or if even if it's possible to make a difference at all.*

– Narrator, *2 Degrees*

In 2013 the global temperature has risen 0.8 degrees above pre-industrial levels and has passed the milestone of 400 parts per million carbon dioxide in the atmosphere. It has been at least 800,000 years since carbon dioxide has been at this level.

- How does *2 Degrees* begin? Why does it begin in this way?

### The Kyoto Protocol

The Kyoto Protocol to the UNFCCC is an international agreement that sets binding obligations on developed countries to reduce emissions of greenhouse gases. Adopted in Kyoto, Japan, on 11 December 1997, the Kyoto Protocol's first commitment period started in 2008 and ended in 2012. The aim of the Kyoto Protocol was to reduce the collective greenhouse gas emissions of developed countries by 5.2 per cent below 1990 levels from 2008 to 2012.

Useful links:

<[http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php)>

<<http://www.kyotoprotocol.com>>

- There are six main greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Research the molecular structure of one of the main greenhouse gases, how the gas is produced, how the gas affects the environment and the ways that emissions of the gas can be reduced.
- Why were individual countries participating in the Kyoto Protocol assigned different targets? What target was assigned to Australia? Did Australia accept this target?
- What is emissions trading? Why is it permitted by the Kyoto Protocol?
- Was the Kyoto Protocol a success?

### From Bonn to Barcelona

*2 Degrees* takes the audience to Bonn in Germany and then to Barcelona in Spain, where UNFCCC delegates from participating countries meet to discuss key negotiating texts.

- What is the Bali Road Map?
- How does *2 Degrees* portray the pre-Copenhagen negotiation meetings?
- Explain the importance of the official pre-Copenhagen negotiation meetings.



### Copenhagen

*We've come here because climate change poses a grave and growing danger. This is not fiction; it is science. Unchecked, climate change will pose unacceptable risks to our security, our economies and our planet.*

– Barack Obama

The 2009 UNFCCC, more commonly known as the Copenhagen Summit, was held at the Bella Center in Copenhagen, Denmark, from 7–18 December. The conference included the fifteenth Conference of the Parties (COP 15) to the UNFCCC and the fifth Meeting of the Parties (MOP 5) to the Kyoto Protocol. According to the Bali Road Map, a framework for climate change mitigation beyond 2012 was to be agreed there.

- Use the following statements to discuss the importance of UNFCCC Copenhagen. Are these views optimistic or pessimistic about solving climate change?  
*I hope so strongly that we are able to succeed in Copenhagen.* – Jens Stoltenberg  
*But if we fail in Copenhagen it will be much more costly.* – Erik Solheim

*I think Copenhagen in many ways will be a defining moment of the twenty-first century. That's not to overdramatise it; it's just to put it into context.*

– Achim Steiner

*I believe that this conference will write history, but we need to make sure that it writes the right history.*

– Yvo de Boer

*This is the time we must deliver not just a deal but an ambitious deal in Copenhagen.* – Connie Hedegaard

*This has generally been described as the most complex negotiation in history and part of that is because the issue is complex, the science is complex and getting countries to agree to change is complex.*

– Roman Paul Czebiniak

*When you try and get 180 countries around the world to agree on anything it's bound to be slow.*

– Andrew Mitchell

The Copenhagen Summit had four achievable goals, according to the UNFCCC:

1. Make clear how much developed countries will limit their greenhouse gas emissions.
2. Determine how, and to what degree, developing countries can limit their emissions without limiting economic growth.
3. Explore options for stable and predictable financing from developed countries that can help the developing world reduce greenhouse gas emissions and adapt to climate change.
4. Identify ways to ensure developing countries are treated as equal partners in decision-making, particularly when it comes to technology and finance.

Despite widely held expectations that the Copenhagen Summit would produce a legally binding treaty, the conference was plagued by negotiating deadlock.

- Drawing on the following statements, discuss the delegates' responses to the stalled negotiations:  
*We are given sixty minutes – sixty minutes – to decide whether we agree or not that the decision that this small group of countries has already adopted because they have decided that they can represent the entire world.*

– Bolivia

*I feel a sense of loss because my country being only 2 metres above sea level is one of the biggest losers in this exercise. I feel a sense of sadness because I will have nothing to show my grandchildren for my absence for the last two weeks and more than that I have failed to secure a future for them and for their children.*

– Marshall Islands

*This document threatens the lives and the livelihoods of millions of people in developing countries and the existence of the African continent. A solution that is based on 2 degrees Celsius is murderous. It condemns and tunnels Africa into a furnace in order to maintain the economic dominance of a few countries and it is a solution based on values, the same very values in our*



*opinion, that tunneled 6 million people in Europe into furnaces.*

– Sudan

*To compare this initiative to the Holocaust is profoundly offensive to my delegation. This is wrong. These remarks should be withdrawn.*

– Canada

*It is shameful of ourselves, condemning each other. The whole world is watching us.*

– Japan

- What role did the world leaders play at UNFCCC Copenhagen?

The outcome of UNFCCC Copenhagen is the Copenhagen Accord. The Copenhagen Accord was drafted by approximately thirty countries and judged a meaningful agreement. It was taken note of, but not adopted, in a debate by all the participating countries, and it was not passed unanimously. The Copenhagen Accord endorsed the continuation of the Kyoto Protocol. In addition, it recognised that climate change is one of the greatest challenges of the present day and that actions should be taken to keep any temperature increases to below 2 degrees Celsius. The document was not legally binding and did not contain any legally binding commitments for reducing carbon dioxide emissions.

- *The problem with the whole Copenhagen process is exactly the same as the problem with the Kyoto process, which is that it's a matter of horse trading. Every nation is trying to get the smallest cut for itself possible whilst loading the cuts onto other nations and that means the cuts can never be tailored to what the science says. They get tailored to the politics instead.*

– George Monbiot

*120 big men failed. Science is providing the reasons. Politicians need to act. And they didn't.* – Paulo Adario  
*Today is sort of crunch day, I guess, in a lot of the processes. The big-picture stuff is being looked at today and it's looking less and less likely that there will be an overall agreement at Copenhagen. And for good reason because the developed countries have not yet committed the funds that they need to commit for developing countries to adapt to climate change, to mitigate against climate change. The developed countries have not yet committed to targets in terms of emission cuts that are going to make a difference to climate change. And*





*unless these big picture and expensive issues are dealt with, the overall agreement won't succeed.*

– Davyth Stewart

*People are mad. People have been organising for years. Governments have been promising this. Everyone agrees we need a real strong climate deal if we are going to stop this catastrophe. And if we don't there are millions of lives on the line. And what was announced tonight is so far from what we need it's just unacceptable.*

– Ben Wikler

*2 Degrees* refers to Copenhagen as a 'fiasco'. What is a fiasco? What evidence in *2 Degrees* supports this proposition?

- Your turn to decide:  
Did UNFCCC Copenhagen fail to live up to expectations?

Your task is to devise a UNFCCC scorecard that indicates to what extent UNFCCC Copenhagen met its objectives. Draw on the information provided in *2 Degrees* Part 1.

Since Copenhagen there have been three more climate change conferences – in Mexico, South Africa and Qatar – and the Rio Earth Summit. All of these meetings failed to produce a commitment by governments to implement solutions as radically as the science demands.

### The climate scientists

*We have to make dramatic behavioural changes now.*

– Professor Kevin Anderson

Professor Kevin Anderson from the Tyndall Centre for Climate Change Research University of Manchester is one of the climate scientists featured in *2 Degrees*. Anderson argues that 'we are mugging the planet'. He believes that we have a moral imperative to act.

- What is a climate scientist?

- Who are the world's leading climate scientists? Who are Australia's climate change experts?

- Your task is to make two PowerPoint slides about a climate scientist or climate science organisation (past or present). Your PowerPoint slides will be added to a class PowerPoint presentation. Every student needs to choose a different subject.

Slide 1: Provide the name, credentials and an image of the subject.

Slide 2: Describe the subject's contribution to climate science.

Useful links:

<<http://climate.nasa.gov/scientific-consensus/>>

<<http://climatescientistsaustralia.org.au>>

<[http://en.wikipedia.org/wiki/List\\_of\\_climate\\_scientists](http://en.wikipedia.org/wiki/List_of_climate_scientists)>

When the class has compiled the PowerPoint presentation, add a title slide and bibliography slide.

- What is climate change denialism?
- Why do you think some people choose to deny the science about climate change?

### The climate movement

Environmental non-governmental organisations (NGOs) and climate campaigners are the watchdogs of the UNFCCC process in Copenhagen.

- Working as a class, compile a list of environmental NGOs.  
Useful link: <<http://www.climatenetwork.org>>
- Drawing on *2 Degrees*, describe the role that the environmental NGOs play in the negotiations at UNFCCC Copenhagen.

- Anna Keenan is one of the many climate campaigners in Copenhagen. She has been attending UNFCCC negotiations since Bali in 2007.

What is Keenan's view of climate change?

Why is Keenan committed to climate justice?

Is Keenan's commitment admirable?

How does *2 Degrees* portray Keenan?



Useful links:

<[http://content.time.com/time/video/player/0,32068,57961611001\\_1948719,00.html](http://content.time.com/time/video/player/0,32068,57961611001_1948719,00.html)>

<<https://www.youtube.com/watch?v=F2HALowShts>>

- Who is fighting for climate justice in Australia?  
Useful link: <<http://www.climatemovement.org.au>>.
- Drawing on *2 Degrees* and your online research, hold a class forum to discuss this question: 'Can the climate movement make a difference?'

## Rising sea levels

*We clearly observe the lack of will by developed countries to commit to serious emission reductions. As a small island state this is particularly concerning.*

– UNFCCC delegate from Papua New Guinea

*We are here in Copenhagen to fight for our identity, for our culture and for our very right to exist.*

– Leah Wickham

Scientific research indicates sea levels worldwide have been rising at a rate of 3.5 millimetres per year since the early 1990s. This sea-level rise is a response to increasing concentrations of greenhouse gases in the atmosphere and the consequent changes in the global climate. The trend puts coastal cities and island nations at risk of being inundated by the ocean.

- What is sea level rise?  
Useful links:  
<<http://ocean.nationalgeographic.com/ocean/critical-issues-sea-level-rise/>>  
<<http://www.cmar.csiro.au/sealevel/>>
- Name the small island states. Locate the small island states on a world map.  
Useful link: <<http://aosis.org>>
- What risks does climate change pose for the small island states? Your answer should identify the environmental, social, economic and cultural consequences of climate change.

Choose one small island state as a case study. Investigate the specific consequences of climate change for the small island state that you have selected. Drawing on the results of your investigation, complete one of the following tasks:

- You are a UN delegate for the small island state. Write a speech to be delivered at an impending UNFCCC negotiation.
- You are a resident of the small island state. Write a letter to the rest of the world expressing your concerns about the future of the small island state.
- You are a climate scientist. Write a report about the impact of climate change on the small island state.
- You are a climate campaigner. Write a press release about the need for action to save the small island state from the impacts of climate change.

Useful link: <<http://www.mnn.com/earth-matters/climate-weather/photos/6-island-nations-threatened-by-climate-change/rising-anxiety>>

- Ronny Jumeau is the UN Ambassador for the Seychelles. He expresses the following views about the impact of climate change on the small island states in *2 Degrees*:

'For the small islands states, time is a luxury we don't have. We cannot wait.'

'We don't think the developed world has compromised enough.'

'It is much cheaper to put us on a boat and relocate us than to save our countries.'

What does Jumeau want the negotiations at Copenhagen to achieve?

- Explain the symbolism of the world globe located in the foyer of the conference hall at UNFCCC Copenhagen.
- What is ocean acidification?  
What risks does it pose?  
How can it be averted?
- Australia is a coastal society.  
Investigation: Is Australia at risk of rising sea levels?  
Useful link: <<http://www.climatechange.gov.au/climate-change/adapting-climate-change/australias-coasts-and-climate-change/mapping-sea-level-rise>>.  
Prepare a one-minute speech that provides an answer to this question.

## Deforestation

*Forests are the wildcard in these negotiations and they'll either take us closer to or further away from our goal of combating catastrophic climate change.*

– Roman Paul Czebiniaik

Forests are vital for life. They provide a habitat for millions of species. They protect soil from erosion. Forests provide people with food and shelter and many other resources. They also purify the air and water. They produce oxygen, store carbon dioxide, and help control climate. Preserving forests is beneficial for the entire planet.

The role that deforestation plays in climate change is discussed in *2 Degrees*. Forests are a major source of carbon emissions when cut down. Deforestation is responsible for 20–30 per cent of annual carbon dioxide emissions – greater than the global transport sector. Most of the deforestation of forests is carried out in order to meet the demands of developed countries. Climate scientists and campaigners believe that until we halt deforestation we will not win the battle against climate change.

- Working as a class, use the thinking tool PMI (Plus Minus Interesting) to brainstorm the issue of deforestation.
- What statement does *2 Degrees* make about the damage caused by deforestation?
- Draw and annotate a diagram to explain the links between deforestation and climate change.
- Is it simply a matter of not cutting down the forests? Why is deforestation a complex problem? Why is deforestation a complex problem for developing countries? How does *2 Degrees* suggest that the problem of deforestation can be solved?

Useful links:

<<http://www.climatechange.gov.au/international/actions/australias-contribution/reducing-emissions-deforestation-and-forest-degradation>>

<<http://www.csiro.au/Organisation-Structure/Divisions/Marine--Atmospheric-Research/GlobalCarbonProject-Deforestation.aspx>>

<[http://www.wwf.org.au/our\\_work/saving\\_the\\_natural\\_world/forests/threats/deforestation\\_and\\_climate\\_change/](http://www.wwf.org.au/our_work/saving_the_natural_world/forests/threats/deforestation_and_climate_change/)>

<<http://www.un-redd.org>>



- *2 Degrees* takes its audience to the Congo, one of the poorest countries on earth. Industrial-scale logging is a potential source of income. It is suggested that if such deforestation is allowed it will trigger a climate bomb that would be disastrous for the planet. Drawing on *2 Degrees* and other print and electronic resources, investigate the case for and against logging in the Congolese rainforests. Hold a class forum to discuss this question: 'Should the Congolese rainforests be logged?'

## Climate Justice Fast

*The thing that will solve climate change is the end of fossil fuels, the end of deforestation and the end of overconsumption as a value in our society. We can't just continue to consume like there's no tomorrow because if we continue to consume like there's no tomorrow, there will be no tomorrow for our whole generation and that's a very scary thought.*

– Anna Keenan

Anna Keenan, along with six other activists compelled to take drastic action to highlight the need for climate justice, begin a hunger strike at Barcelona. Their intention was to continue fasting until the end of UNFCCC Copenhagen. They hoped to draw attention to the link between climate change and hunger in developing countries. Climate Justice Fast calls for immediate, courageous and moral action on climate change.

- Do you think campaigns like Climate Justice Fast can make a difference?
- Do you agree with Keenan that solving climate change is a matter of shifting global values about consumption?
- Are you guilty of consuming without thinking of the consequences?





## How Old Will You Be in 2050?

Sporting bright blue t-shirts emblazoned with the slogan 'How old will you be in 2050?', the youth delegation at the UNFCCC meeting in Bonn seeks to remind delegates that the decisions they they make today will affect their futures.

- Why does Anna Keenan believe the campaign is a success?
- Keenan claims young people are the 'moral stakeholders'. Explain the significance of Keenan's claim. Do you agree with Keenan?
- How old will you be in 2050?  
What type of environment do you think you will inherit?
- Do you think the current generation of decision-makers are doing all that they can to tackle climate change?

## Hopenhagen

Hopenhagen was a climate change campaign organised by the United Nations and the International Advertising Association to support COP15. The campaign aimed to raise awareness of the importance of the UN meeting. The aim of the campaign was to get the public to move from coping with climate change to hoping that action can be taken to tackle the issue.

Access the following links to learn more about the campaign:

<<http://www.ogilvy.com/#/The-Work/Galleries/hopenhagen.aspx>>

<<https://www.youtube.com/user/hopenhagen>>

## Part 1 Project: Climate Change Conference

**Hold a class climate change conference.** Begin by giving your conference a name. Every student in the class will be expected to participate in the class climate change conference.

Your objective is to write a ten-point agreement about climate change.

As a participant, you are free to choose the role that you want to play. The class will need to negotiate these choices to ensure that there is a range of representatives at the class climate change conference. The conference will also need to be convened by an executive that will facilitate the negotiations.

As a participant, you will need to research the issues that are relevant to your adopted persona and prepare speeches. Participants will be expected to explain the problems caused by climate change and to suggest possible solutions. Every participant will make a speech to the assembly and take part in small-group and whole-group negotiations and discussions.

Participants with like-minded views and shared interests are encouraged to work collectively to lobby for a solution to climate change.



## » PART 2: THE BOTTOM-UP COMMUNITY RESPONSE

Climate change is taking place. Humans are causing it, and the planet will face dire consequences if we continue with the currently universal ‘business as usual’ approach. *2 Degrees* proposes that one way to a reduction of emissions is for the public to take action. Not only can we live in more sustainable ways but we can demand more from our governments and corporations. People power has forced change in the past, and we need to do it again now.

### The political process

- *The failure of Copenhagen was a watershed, a huge defeat for those who want action on climate change because it gave succour to all of those who are opposed to action.* – Clive Hamilton  
*We know exactly what needs to be done. There’s no technological barrier in the way. There’s no economic barrier in the way. We can afford to do what needs to be done. All that stands in the way is a lack of political will.* – George Monbiot

Consider the views expressed at the beginning of *2 Degrees* Part 2. What do these views suggest about the relationship between climate change and government action on climate change?

Why shouldn’t we wait for a government-led solution to climate change?

### Renewable energy

*Every government on earth is trying to maximise the supply of fossil fuels. It’s trying to exploit its coal, oil and gas reserves.* – George Monbiot

Fuels such as coal, oil and natural gas have been formed over millions of years from organic matter. These fuels,

known as fossil fuels, are still the earth’s primary fuel source. Burning any carbon-based fuel converts carbon to carbon dioxide. Unless it is captured and stored, this carbon dioxide is usually released to the atmosphere. There is no ‘Planet B’. We must reduce our carbon emissions, specifically the burning of fossil fuels.

- What are the five fossil fuels?
- Why are fossil fuels called non-renewable energy sources?
- Is it possible to limit the use of fossil fuels?
- What are renewable energy sources? Why are renewable energy sources sustainable?  
Useful link: <<http://bze.org.au>>
- *2 Degrees* Part 2 promotes Andasol – a solar thermal plant in Andalusia, Spain – to advocate the use of solar thermal energy as a viable alternative to coal-based power.  
Use the internet to research solar thermal energy and the Andasol solar thermal plant.  
Working as a class, make a list of the pros and cons of replacing Australia’s coal-fired power stations with solar thermal plants.
- Working in a small group, prepare a pitch that convinces your target audience to rely on a renewable energy source.

### The community votes

*The choice that is facing Port Augusta is the same choice that is facing Australia – that is, to repower Port Augusta and to repower this nation with solar thermal energy.*

– Joy Baluch

The town of Port Augusta is located on the east coast of the Eyre Peninsula in South Australia. Port Augusta’s main industry is coal-fired electricity. Electricity is generated at the Playford B and Northern power stations.



2 Degrees tracks the campaign of the Repower Port Augusta Alliance, as they take a stand for clean energy. Led by eighty-year-old long-time mayor Joy Baluch, local residents rallied to organise a community vote on whether to replace the coal-fired power stations with solar thermal or a different fossil fuel – namely gas. The campaign was driven by the desire to improve the health and wellbeing of the Port Augusta community, to protect the local environment and to secure a sustainable future for South Australians. When the votes are counted, it is a resounding win for renewable technology.

Useful link: <<http://repowerportaugusta.org>>

- What moments confirmed Joy Baluch’s commitment to climate change?
- Explain the motivation of local residents like Liz Zyla and Kay Reynolds.
- *Alinta strenuously refute any links that interest groups may make between the emissions of the power station and health impacts to the community.*  
– Jeff Dimery, CEO, Alinta Energy  
Dimery boasts about Alinta’s compliance with EPA regulations. What evidence challenges his claim?  
Useful link: <<http://www.smh.com.au/comment/we-must-kill-dirty-coal-before-it-kills-us-20140902-10b8lk.html>>
- Who else supports Port Augusta’s claim for renewable energy?
- *I would like to go down in history as having been the one that was instrumental in having the Northern Power Station converted from fossil-fuel power to clean, green energy.*  
– Joy Baluch

Keep up-to-date on Repower Port Augusta Alliance’s campaign at <<http://repowerportaugusta.org>> and <<http://2degreesmovie.com>>.

### Walk for solar

The Australian Youth Climate Coalition bolstered by the success in Port Augusta decided to organise a march from Port Augusta to Adelaide to deliver the Port Augusta community vote to State Parliament. In September 2012,

100 people walked 328 kilometres to show their support for investment in Australia’s first ever solar thermal plant. The fifteen-day walk ended in a 2000-strong Rally for Solar through the streets of Adelaide.

- Who walked and why?
- How does 2 Degrees portray the walk and the participants?
- Think about things in your community that you could stand up for.
- How would you take your message to the political leaders of your town or state?

### People power

*Every person in Australia should be knocking on their politician’s door and saying enough is enough.* – Joy Baluch

Joy Baluch believed in people power. Her determination to improve life in Port Augusta rallied the community and collectively the actions of the residents of Port Augusta made a difference. The South Australian Government has established an enquiry into building a solar thermal plant in Port Augusta. A diverse alliance of groups continue to campaign for investment in this technology.

Community groups all over the world are empowered and mobilised to be part of the solution. Xiuhtezcatl Martinez – a thirteen-year-old boy from Boulder, Colorado in the United States – is proof that age is not an obstacle in the campaign for climate justice.



Xiuhtezcatl Martinez is the youth director for Earth Guardians. Earth Guardians is an environmental action organisation. Earth Guardians recommend that individuals first address their own lifestyles: no matter where you are on the globe you can always do something to reduce your carbon footprint. Martinez advocates that climate justice begins at home and has the power to change the value system of the global society.

- 'I think one of the biggest reasons we're in this huge global mess is because of our disconnection to the Earth. Our disconnection to ourselves and our disconnection to our cultures has driven us to this greedy consumption-based society that we are all living in right now' – Xiuhtezcatl Martinez  
Watch the 2 Degrees DVD extra 'Voices on solutions'. Spend time as a class discussing all that Martinez advocates.  
The Earth Guardians use music, especially rap music, to advance their message.  
Does Martinez inspire you to act on climate change?  
Useful links:  
<<http://www.earthguardians.org/XiuhBio.shtml>>  
<<https://www.youtube.com/watch?v=ANrxvmHUuV0>>  
<<https://www.youtube.com/watch?v=JxI7ERfIFm>>
- Visit Earth Guardians online at <<http://www.earthguardians.org>>.

## Climate change – Australia

What does climate change mean for Australia?

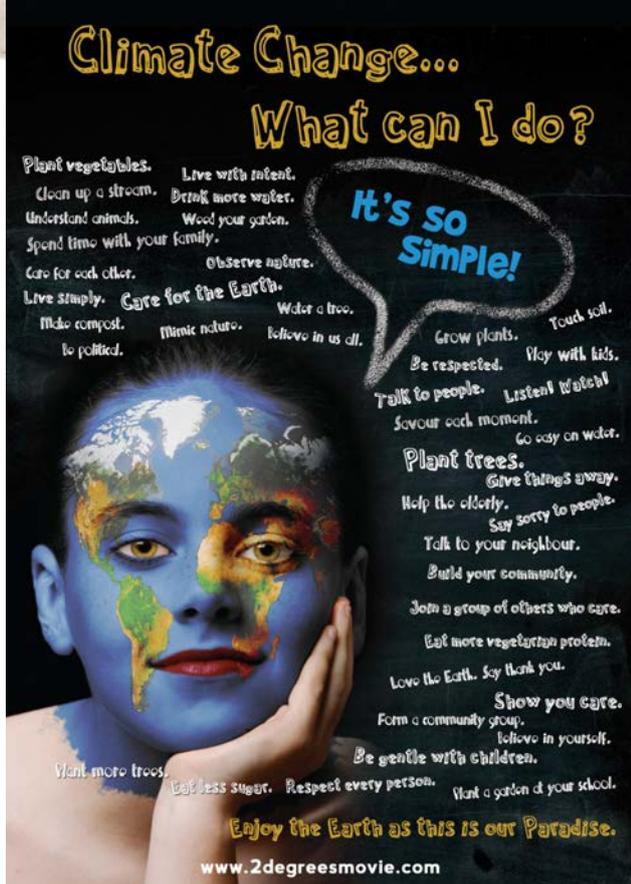
- Draw a map of Australia. Use this map to make a mind map that identifies the causes and likely consequences of climate change in Australia.
- The decisions that Australian governments – federal, state and local – make today will have lasting consequences for a future Australia.  
Make an annotated timeline that shows the government decisions that have had a significant impact (both positive and negative) on Australia's climate.
- Class think tank: What strategies can Australia implement to reduce emissions and limit the negative impacts of climate change?

## Part 2 Project: Make a difference

*The importance of individual acts in the household and community is really to the extent that it politicises us and makes us understand the scale and seriousness of the problem. I mean in a way, by undertaking individual actions, it gives you the motive and the right to become a citizen engaged in political activity.* – Clive Hamilton

Can you make a difference? What action can you take?

- Take action at home: Make a pledge to do one thing differently at home.  
For example: I pledge to take shorter showers.  
Shorter showers mean that you are using either less electricity or gas to heat the hot water for your shower. (You could also ask an adult family member to turn down the hot water system's thermostat.) In addition, you are using less electricity in the pumping stations that bring water to your house and take the wastewater away. This also applies to how often you flush your toilet.  
Share your pledge with your family. Ask them to pledge to do one thing differently.  
Some people say it takes twenty-one days to form a habit. Your task is to track your and your family's attempt to change your behaviour for twenty-one days. Use a table to make a record of each family member's pledges and their commitment to their pledges. On Day 22, evaluate your success.
- Take action at school: Make a pledge to do one thing differently at school.  
Is your school committed to climate justice? Form a climate action group.  
**Task 1:** How climate friendly is your school? Conduct an audit of the school environment and the behaviour of the students and staff. What do you do well? What could you do better?  
**Task 2:** Organise an awareness-raising campaign. Make badges, design posters and organise activities to educate the school community about climate friendly behaviour.  
**Task 3:** Invite a guest speaker to talk to the school community about climate change and climate justice.  
**Task 4:** Draw up a pledge for every student to take home and get their parents to sign, in which the parents promise to reduce their carbon emissions by 10 per cent each year. Draw up a list of ways in which they can do this.



## » PARIS 2015 UNFCCC CONFERENCE

The United Nations Climate Change Conference, COP21 or CMP11 will be held in Paris, France, in 2015. The conference objective is to achieve a legally binding and universal agreement on climate change from all the nations of the world. Leadership of the negotiations is yet to be determined.

## 2 Degrees DVD Extras

The DVD extras include:

‘Beautiful Places’ showcases the international locations that feature in *2 Degrees*.

In ‘Producer’s Copenhagen wrap’, Ange Palmer talks to camera on the last day of COP15, expressing her disappointment about the negotiations. Palmer labels COP15 a ‘travesty of process’ and a ‘travesty of justice’. Her only hope is that people power will right the wrongs of COP15.

‘Real leaders of our time’ describes the work of climate campaigners Joy Baluch, Mayor of Port Augusta, South Australia and Xiuhtezcatl Martinez of Earth Guardians.

In ‘voice on climate change’ and ‘voice on solutions’ climate scientists, representatives from environmental NGOs and climate campaigners express their views about climate change and climate justice.

## 2 Degrees online

Access information about *2 Degrees* online at:

*2 Degrees* website

<<http://2degreesmovie.com>>

Facebook

<<https://www.facebook.com/2DegreesMovie>>

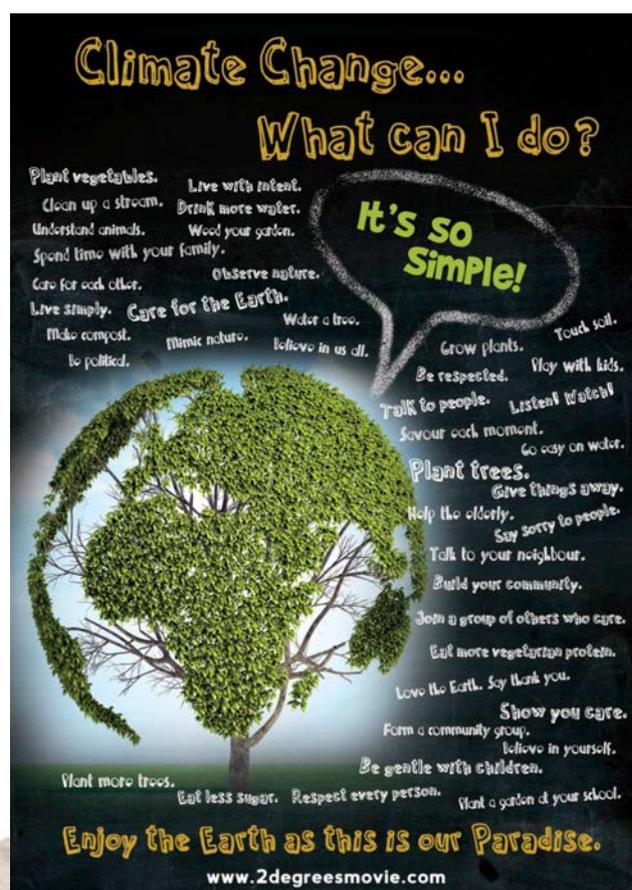
Twitter

<<https://twitter.com/2degreesmovie>>

## Useful links

Teachers are advised to access online resources for relevant curriculum materials. The following list is intended as a starting point.

- A Student's Guide to Global Climate Change  
<<http://www.epa.gov/climatestudents/resources/lesson-plans.html>>
- Australian Government Bureau of Meteorology  
<[http://www.bom.gov.au/lam/Students\\_Teachers/learnact.htm](http://www.bom.gov.au/lam/Students_Teachers/learnact.htm)>
- Australian Museum  
<<http://australianmuseum.net.au/Climate-change-our-future-our-choice-Teacher-Notes/>>
- Cool Australia  
<<http://coolaustralia.org/activity/flipped-classroom-tuning-into-climate-change/>>
- CSIRO: Carbon Kids  
<<http://www.csiro.au/Portals/Education/Teachers/Classroom-activities/CarbonKids/CarbonKids-Resource.aspx>>
- Disaster Resilient Australia  
<<http://schools.aemi.edu.au/climate-change/climate-change-lesson-plan>>
- My NASA Data  
<<http://mynasadata.larc.nasa.gov/lesson-plans/climate-change-lessons/>>



# CLIMATE CHANGE...

## WHAT CAN I DO?

### IT'S SO SIMPLE!

TALK TO PEOPLE SPEND TIME WITH YOUR FAMILY  
**GROW PLANTS** CLEAN UP A STREAM  
 SAVOUR EACH MOMENT **PLANT TREES**  
 PLAY WITH KIDS HELP THE ELDERLY **LISTEN!** WATCH!  
**CARE FOR THE EARTH** TOUCH SOIL  
 BUILD YOUR COMMUNITY  
**PLANT VEGETABLES** LOVE THE EARTH  
 EAT MORE VEGETARIAN PROTEIN **WATER A TREE**  
**SAY SORRY TO PEOPLE** BELIEVE IN YOURSELF  
**PLANT A GARDEN AT YOUR SCHOOL**  
 BE RESPECTED SAY THANK YOU BELIEVE IN US ALL  
 WEED YOUR GARDEN FORM A COMMUNITY GROUP  
 SHOW YOU CARE MAKE COMPOST BE POLITICAL  
 GIVE THINGS AWAY **PLANT MORE TREES**  
 JOIN A GROUP OF OTHERS WHO CARE LIVE SIMPLY  
**DRINK MORE WATER** EAT LESS SUGAR  
 CARE FOR EACH OTHER **GO EASY ON WATER**  
 RESPECT EVERY PERSON UNDERSTAND ANIMALS  
 BE GENTLE WITH CHILDREN LIVE WITH INTENT  
 OBSERVE NATURE MIMIC NATURE

**ENJOY THE EARTH AS  
THIS IS OUR PARADISE**

www.2degreesmovie.com

- National Wildlife Federation: Bringing Climate to the Classroom  
<<http://www.climateclassroom.org>>
- NT Climate Hub  
<<http://ntclimatehub.org/browse/curriculum-resources/>>
- Stanford University: Climate Change Education  
<<https://pangea.stanford.edu/programs/outreach/climatechange/curriculum>>
- Sustainable Schools NSW  
<<http://www.environment.nsw.gov.au/sustainable-schools/teach/climatechange.htm>>

The following websites are just some of the many online resources providing information about climate change:

- Australian Government Bureau of Meteorology  
<<http://www.bom.gov.au/climate/change/>>
- Australian Government Climate Change Authority  
<<http://www.climatechangeauthority.gov.au>>
- Australian Government Department of Agriculture  
<<http://www.daff.gov.au/climatechange/climate>>
- Australian Government Pacific Climate Change Science  
<<https://www.sa.gov.au/topics/water-energy-and-environment/climate-change>>
- Climate Change in Australia  
<<http://www.climatechangeinaustralia.gov.au>>
- CSIRO  
<<http://www.csiro.au/Outcomes/Climate/Understanding.aspx>>
- NASA Global Climate Change  
<<http://climate.nasa.gov>>
- Northern Territory Government: Climate Change  
<<http://www.nt.gov.au/d/index.cfm?Header=Climate%20Change>>
- NSW Government: Climate Change  
<<http://www.environment.nsw.gov.au/climatechange/government.htm>>
- Parliament of Australia  
<[http://www.aph.gov.au/About\\_Parliament/](http://www.aph.gov.au/About_Parliament/)>

- Parliamentary Departments/Parliamentary Library/  
Browse\_by\_Topic/ClimateChange>
- Queensland Government: Climate Change  
<<http://www.der.wa.gov.au/your-environment/climate-change>>
- South Australia Government: Climate Change  
<<https://www.sa.gov.au/topics/water-energy-and-environment/climate-change>>
- Tasmanian Government: Climate Futures for Tasmania  
<[http://www.dpac.tas.gov.au/divisions/climatechange/adapting/climate\\_futures](http://www.dpac.tas.gov.au/divisions/climatechange/adapting/climate_futures)>
- United Nations: Global Issues – Climate Change  
<<http://www.un.org/en/globalissues/climatechange/>>
- United States Environmental Protection Agency  
<<http://www.epa.gov/climatechange/>>
- Victorian Government: Understanding Climate Change  
<<http://www.environment.nsw.gov.au/climatechange/government.htm>>
- Western Australia Government: Your Environment  
<<http://www.der.wa.gov.au/your-environment/climate-change>>
- Wikipedia: Climate Change  
<[http://en.wikipedia.org/wiki/Climate\\_change](http://en.wikipedia.org/wiki/Climate_change)>

The following websites are just some of the many online resources providing information about climate action:

- Australian Youth Climate Coalition  
<<http://www.aycc.org.au>>
- Beyond Zero Emissions  
<<http://bze.org.au>>
- Climate Action Network Australia  
<<http://cana.net.au>>
- Climate Action Network International  
<<http://www.climateactionnetwork.org>>
- Climate Action Programme  
<<http://www.climateactionprogramme.org>>
- Climate Justice Programme  
<<http://www.climatejustice.org.au>>
- Climate Movement Australia  
<<http://www.climatemovement.org.au/groups/>>
- Climate Reality Project  
<<http://climateralityproject.org>>
- Earth Hour  
<<http://www.earthhour.org>>
- Friends of the Earth Australia  
<<http://www.foe.org.au/climate-justice>>
- GetUp!  
<<https://www.getup.org.au/campaigns/climate-action-now/national-day-of-climate-action/>>
- Global Campaign to Demand Climate Justice  
<<http://climatejusticecampaign.org>>
- Greenpeace Australia Pacific  
<<http://www.greenpeace.org/australia/en/what-we-do/climate/>>
- Greenpeace International  
<<http://www.greenpeace.org/international/en/campaigns/climate-change/>>
- WWF Australia  
<[http://www.wwf.org.au/our\\_work/people\\_and\\_the\\_](http://www.wwf.org.au/our_work/people_and_the_)>

environment/global\_warming\_and\_climate\_change/>

- WWF Global  
<[http://wwf.panda.org/about\\_our\\_earth/aboutcc/](http://wwf.panda.org/about_our_earth/aboutcc/)>
- WWF 2 Degrees Project  
<<http://2degreesproject.com.au>>

## The 2 Degrees team

*2 Degrees* is a Green Turtle Films production.

**JEFF CANIN | PRODUCER/DIRECTOR/WRITER/EDITOR:** Jeff Canin grew up in apartheid South Africa, where the pervasive injustice instilled in him a strong desire to make a difference in the world. Once he left South Africa at the age of twenty, Canin's focus gradually shifted from political to environmental issues. By twenty-five, he had completed a Bachelor of Environmental Science degree in London and found a passion for sea turtles, which led to a job in Greenpeace as the International Sea Turtle Campaigner. After many successes negotiating at international conventions, Canin moved to Australia and has been a successful filmmaker for the last twenty-two years. Canin's first company was the award-winning Hatchling Productions, which he co-founded with Cathy Henkel. Hatchling Productions' films include *Walking Through a Minefield* (1999), *Losing Layla* (2001), *The Man Who Stole My Mother's Face* (2004), *I Told You I was Ill: The Life and Legacy of Spike Milligan* (2005) and *The Burning Season* (2008). In 2009, Canin established Green Turtle Films. *2 Degrees* is their first feature-length production.

**ANGE PALMER | CO-PRODUCER/WRITER/PRODUCTION MANAGER:** Early in her adult life, Ange Palmer worked as a translator on an ethnobotanical research expedition in the Sumatran rainforest. This experience inspired twenty years of work as a passionate environmental educator and campaigner at local and national level in New Zealand. She was also involved with sea turtle conservation, and this is how she initially met Jeff. She held a Management Committee position with New Zealand's longest established Environment Centre for many years, and initiated several sustainably

oriented enterprises. She is a qualified Medical Herbalist. *2 Degrees* is Palmer's first credit as a documentary filmmaker.

**VANESSA GORMAN | CO-DIRECTOR:** Vanessa Gorman has been producing and directing documentaries and documentary television for the last twenty-five years. She cut her teeth on environmental documentaries for the internationally distributed science and technology TV program *Beyond 2000*, as well as filming in over forty countries as overseas producer. Gorman has directed the documentaries *Under Sail* (1993), *Next to Nothing* (1996), *Nothing to Hide and Losing Layla* (2001). She has also produced and directed on several series for the ABC and for the last fifteen years has been a producer for ABC TV's acclaimed and award-winning biographical series *Australian Story*. Gorman brings a passion for both environmental issues and storytelling to her role as co-director of *2 Degrees*.

**CONAN FITZPATRICK | CAMERAPERSON/CO-DIRECTOR:** Conan studied film at the Art Center College of Design in Pasadena, California, before returning to Australia to complete a BA (Hons) in Studies in Religion at the University of Queensland. Following an interest in theatrical storytelling and collaborative methodologies, he began working variously as lighting, multimedia and set designer, culminating in a two-year stint as in-house lighting designer for Australian Indigenous theatre company Kooemba Jdarra, and lighting and set designer for the award-winning, critically acclaimed production *The Great Exception, or, The Knowing of Mary Poppins* (which toured around Australia). Conan's short films have screened at various festivals in Australia and overseas, including the Damah Festival in Seattle and Sundance in Utah. His media work encompasses writing, producing, directing, lighting, camera and editing for gallery installations, commercial DVDs and music videos, visual accompaniment for music performances, and interactive multimedia for theatre. He fulfilled the role of writer and director of photography on the feature-length documentary *SixFtHick: Seminal Urges* (Martin Moynahan, 2008), which screened on Australian television in late 2009.



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