

## Lesson Plan: Climate Change Impacts in Kazakhstan

As a **High School** or introductory **Undergraduate** teacher, you can use this lesson plan to **introduce climate change and its impacts in Kazakhstan**.

This lesson plan provides an introduction to climate change, causes and impacts of climate change globally, climate change risk profile for Kazakhstan that includes climate impacts on major sectors of the country such as agriculture, water resources, human health, ecosystems and energy.

Thus, the use of this lesson plan allows you to teach Climate Science and Climate Change in your classrooms.

Use this Lesson Plan to help the students to understand and find answers to:

1. What is Climate Change? What are its causes?
2. What are the impacts of climate change on Kazakhstan?
3. What are the impacts of climate change on agriculture, water resources, human health, ecosystems and energy in Kazakhstan?
4. What mitigation practices can be adopted to control the impacts of climate change in Kazakhstan?

### About the Lesson Plan

Grade Level	High School, Undergraduate
Climate Topic	Climate Change Impacts in Your Country
Location	Central Asia, Kazakhstan
Access	Online
Language(s)	English
Approximate Time Required	60 mins

### Contents

1.	<b>Reading</b> (15 min) and <b>Video</b> (5-15 min)	A reading from the NASA Global Climate Change website that includes information about what is the scientific evidence for climate change, causes, and impacts of climate change. This can be accessed <a href="#">here</a> .  <b>Optional:</b> A set of 7 short video micro-lectures (2-5 minutes in length) on climate change and global warming developed by the National Research Council, The National Academies of Sciences, Engineering, and Medicine. This can be accessed <a href="#">here</a>
2.	<b>Reading 1 (World Bank)</b>	A reading by Climate Change Knowledge Portal of the World Bank that explains climate change and impacts in Kazakhstan.  This can be accessed <a href="#">here</a> .
3	<b>Reading 2 (USAID)</b>	This reading is the Climate Change Risk Profile fact sheet for Kazakhstan by Climatelinks: A Global Knowledge Portal for Climate and Development Practitioners USAID.  This can be accessed <a href="#">here</a> .
4	<b>Classroom/Laboratory Activity</b> (15 min)	A classroom/laboratory activity based on a reading and video on Kazakhstan. This reading and video explains the causes and impacts of Kazakhstan on Kazakhstan and also states the possible solutions to counter the crisis.  The reading can be accessed here. The video can be accessed here.

### Step-by-step User Guide

(Here is a step-by-step guide to using this lesson plan in the classroom/laboratory. We have suggested these steps as a possible plan of action. You may customize the lesson plan according to your preferences and requirements.)

1	Introduce Climate Change through the readings and videos	This reading titled, “The Causes of Climate Change” from the NASA Global Climate Change website, provides introductory information on climate change and global warming. It contains information on the scientific evidence of climate change, its causes and impacts.  This can be accessed <a href="#">here</a> .  Optional: This set of 7 short video micro-lectures (2-5 minutes in length) have been developed by the National Research Council, The National Academies of Sciences, Engineering, and Medicine. This can be used to provide additional information on climate change.  They include: <ol style="list-style-type: none"> <li>1. What is Climate? Climate Change, Lines of Evidence Chapter 1</li> <li>2. Is Earth Warming? Climate Change, Lines of Evidence Chapter 2</li> <li>3. Greenhouse Gasses. Climate Change, Lines of Evidence Chapter 3</li> <li>4. Increased Emissions. Climate Change, Lines of Evidence Chapter 4</li> <li>5. How Much Warming? Climate Change, Lines of Evidence Chapter 5</li> <li>6. Solar Influence. Climate Change, Lines of Evidence Chapter 6</li> <li>7. Natural Cycles. Climate Change, Lines of Evidence Chapter 7</li> </ol> This video playlist can be accessed <a href="#">here</a> .
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2	Discuss causes and impacts of Climate Change in Kazakhstan	<p>Use this interactive website by the Climate Change Knowledge Portal of the World Bank to have your students understand the impacts of Climate Change in Kazakhstan. This resource includes the following:</p> <ol style="list-style-type: none"> <li>I. Climate Change Overview of Kazakhstan</li> <li>II. Country Summary</li> <li>III. Current Climatology: Climate Trends and Variability in Temperatures and Precipitation</li> <li>IV. Climate Projections</li> <li>V. Vulnerability of Kazakhstan to Climate Change</li> </ol> <p>Each section contains relevant climate change information including data, projections, and visualizations. The data is visualized through interactive graphs and users can select different indices, model projections, timescales, and sectors to better understand the impacts of climate change in Kazakhstan.</p> <p>This can be accessed <a href="#">here</a>.</p>
3	Further understanding on impacts of Climate Change on key sectors in Kazakhstan	<p>You may wish to have your students explore climate change and its risks in Kazakhstan in more detail through a resource from climatelinks: A Global Knowledge Portal for Climate and Development Practitioners of the USAID.</p> <p>This factsheet on climate risks in Kazakhstan includes information on:</p> <ol style="list-style-type: none"> <li>I. Current and future climate impacts and vulnerabilities</li> <li>II. Climate impacts on key sectors of: <ol style="list-style-type: none"> <li>1) Agriculture</li> <li>2) Water Resources</li> <li>3) Human Health</li> <li>4) Ecosystems</li> <li>5) Energy</li> </ol> </li> </ol> <p>This can be accessed <a href="#">here</a>.</p>
4	OPTIONAL Classroom/Laboratory Activity on the ‘Lake Chad Crisis’	<p>You may wish to conduct a {roleplay} activity in your classroom/laboratory to further engage your students in understanding the climate crisis in Kazakhstan; specifically on the impact of climate change on food security and water security in Kazakhstan.</p>

**Learning Outcomes:**

The tools in this lesson plan will enable students to:

- learn about climate change and global warming
- understand the impacts of climate change in Kazakhstan
- discuss how changing weather patterns due to climate change could affect future of Kazakhstan
- describe the current and future health risks and economic impacts on Kazakhstan due to climate change

**Additional Resources**

1.	Reading	<a href="#">Climate Risk Country Profile for Kazakhstan</a> : This reading by Climate Change Knowledge Portal of World Bank explains in detail the Climatology, Climate related Natural Hazards & Impacts and Policies and Programs in Kazakhstan.
2	Reading	<a href="#">Intended Nationally Determined Contribution, Kazakhstan</a> : This report provided by UNFCCC is a submission of commitment towards mitigating Climate Change by Kazakhstan.

**Credits / Copyrights:**

1	Reading “The Causes of Climate Change”	by the <a href="#">NASA Global Climate Change</a> website
2	A set of videos; “Climate Change: Lines of Evidence”	Presented by National Research Council, <a href="#">The National Academies of Sciences, Engineering, and Medicine</a>
3	Reading “Climate Change Risk Profile for Kazakhstan”	By <a href="#">Climate Change Knowledge Portal of the World Bank</a>
4	Reading “Climate Change Risk Profile for Kazakhstan”	By <a href="#">Climatelinks</a> : A Global Knowledge Portal for Climate and Development Practitioners, USAID
	Additional Resources	<a href="#">Climate Risk Country Profile for Kazakhstan</a> <a href="#">Intended Nationally Determined Contribution, Kazakhstan</a>