

# The ClimEd Project: Bridging the Gap between Providers and Users of Climate Services

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**INNA KHOMENKO**

**VALERIYA OVCHARUK**

**OLEH SHABLII**

**Odessa State Environmental University**



# Climate Change Impacts



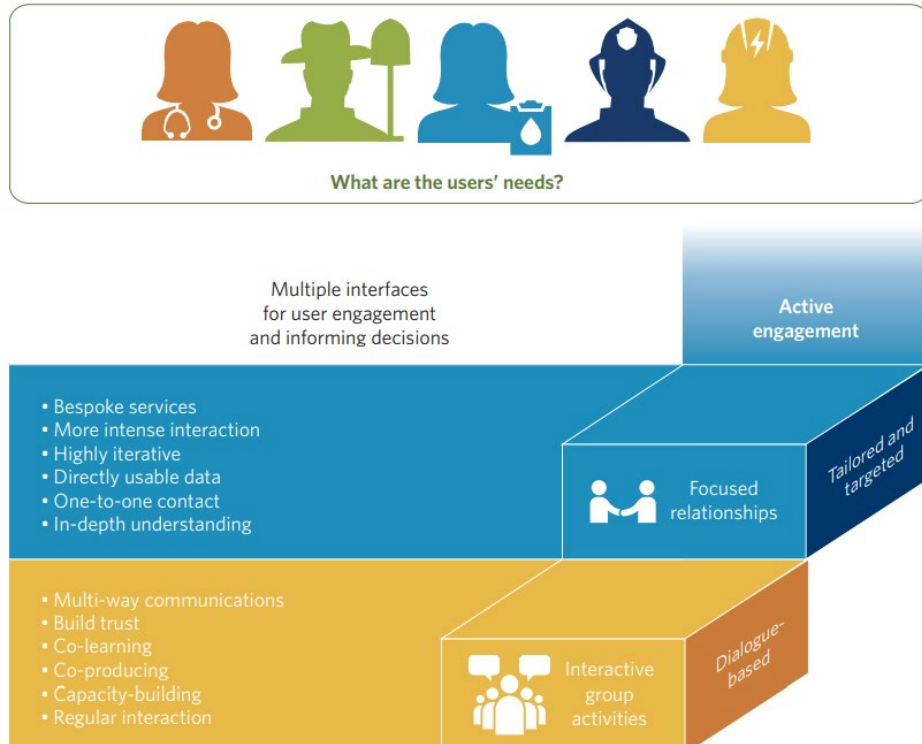
# What are climate services?



Generally defined, climate services represent a decision aide obtained from climate information. This helps prepare societies for the weather conditions they will experience. The end-users are usually represented by various stakeholders at national, sub-national, or community levels. To make these systems work, it is crucial to understand users' data requirements.



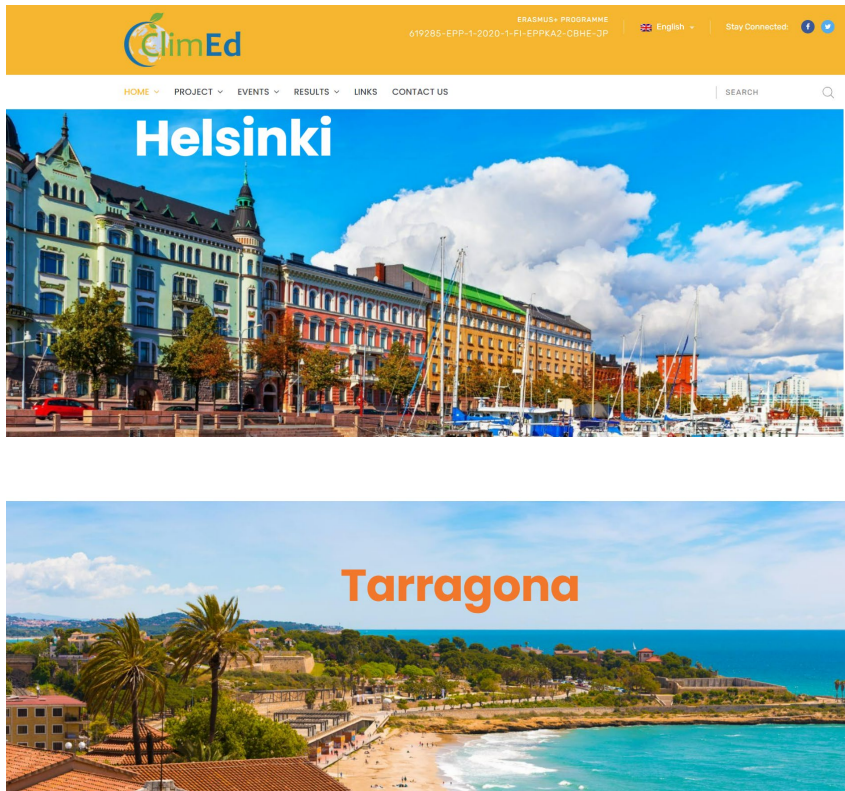
# Some Obstacles In Using Climate Services



One of the main issues related to the usage of climate services is communication between scientists and the decision-makers (e.g. site managers, farmers, energy consultants etc.). Both use very different “languages” and in order to engage in fruitful collaborations, overcoming certain communication barriers is imperative.

Awareness is another common barrier. Incorporating climate data services into development planning comes with full comprehension of the issues involved in climate change adaptation. Unfortunately, there is a low level of awareness of climate change issues at the sub-national and local levels where incorporating climate services often takes place.

# ClimEd



<http://climed.network/>

An international consortium consists of the University of Helsinki (Grant Coordinator of the Project), University of Rovira i Virgili (Spain), Estonian University of Life Sciences, six Ukrainian universities: Odessa State Environmental University (National Project Coordinator), Kyiv National University of Construction and Architecture, OM Beketov National University of Urban Economy in Kharkiv, Lviv Polytechnic National University, Bila Tserkva National Agrarian University, Odessa National Medical University, and two ministries - Ministry of Education and Science of Ukraine and Ministry of Energy and Environment Protection of Ukraine initiated the European educational project of 'Multilevel Local, Nation- and Regionwide Education and Training in Climate Services, Climate Change Adaptation and Mitigation - ClimEd', 619285-EPP-1-2020-1-FI-EPPKA2-CBHE-JP, which received European Union support and implementation which was started by the consortium at the end of 2020.

# Providers of climate services



- |   |  |
|---|--|
| Rivne Regional Centre for Hydrometeorology (3 responses)          | Sumy Regional Centre for Hydrometeorology (2 responses)        |
| Chernivtsi Regional Centre on Hydrometeorology (2 responses)      | Ternopil Regional Centre for Hydrometeorology (1 response)     |
| Volyn Regional Hydrometeorological Centre (1 response)            | Ukrainian Hydrometeorological Centre (1 response)              |
| Dnipropetrovsk Regional Centre for Hydrometeorology (3 responses) | Kharkiv Regional Centre for Hydrometeorology (2 responses)     |
| Danube Hydrometeorological Observatory (2 responses)              | Khmelnitsky Regional Centre for Hydrometeorology (3 responses) |
| Transcarpathian Hydrometeorological Centre (10 responses)         | Central Geophysical Observatory (2 responses)                  |
| Zaporizhzhya Regional Hydrometeorology Centre (1 response)        | Cherkasy Regional Centre for Hydrometeorology (1 response)     |
| Kirovograd Regional Centre for Hydrometeorology (6 responses)     | Lviv Regional Centre for Hydrometeorology (1 response)         |
| Mykolaiv Regional Centre for Hydrometeorology (1 response)        | Vinnitsa Regional Centre for Hydrometeorology (1 response)     |
| Poltava Regional Centre for Hydrometeorology (1 response)         | Chernihiv Regional Centre for Hydrometeorology (1 response)    |
|   | Zhytomyr Regional Centre for Hydrometeorology (2 responses)    |

# Providers of climate services

АНКЕТА ДЛЯ ПРЕДСТАВНИКІВ ПІДРОЗДІЛІВ ГІДРОМЕТСЛУЖБИ УКРАЇНИ

## КОНТАКТНА ІНФОРМАЦІЯ

1. Вкажіть Ваші ім'я і прізвище

2. Місто

3. Телефон

4. Електронна адреса

## РОЗДІЛ 1. НАДАННЯ КЛІМАТИЧНИХ ПОСЛУГ

1. Установа, в якій Ви працюєте:

2. Відділ, в якому Ви працюєте:

## РОЗДІЛ 2. ОЦІНКА ОСВІТНИХ ПОТРЕБ

3. Посада, яку Ви обіймаєте:

1. Чи є у Вас кліматична освіта?

4. Які задачі Вашого відділу, в якому

забезпечення кінцевих  з  
користувачів б

- немає  самоосвіта  масові онлайн курси на таких платформах як FutureLearn, Coursera, EDX, XuetangX, SDGacademy, Prometheus. *Потрібно підкреслити.*
- курси на основі  аудиторні курси для  молодший бакалавр в   
змішаного навчання неспеціалістів галузі кліматології в Університеті
- бакалавр в галузі  магістр в галузі  інше. *Поясніть, що саме.*   
Університеті в Університеті в

2. Як Ви підвищуєте свою кваліфікацію? (Відмітьте всі варіанти, які підходять)

- самостійно  курси підвищення кваліфікації Одеському державному екологічному університеті
- відкриті масові онлайн курси  курси підвищення кваліфікації в інших університетах. Вточніть, в яких саме.
- інше. *Поясніть, що саме*

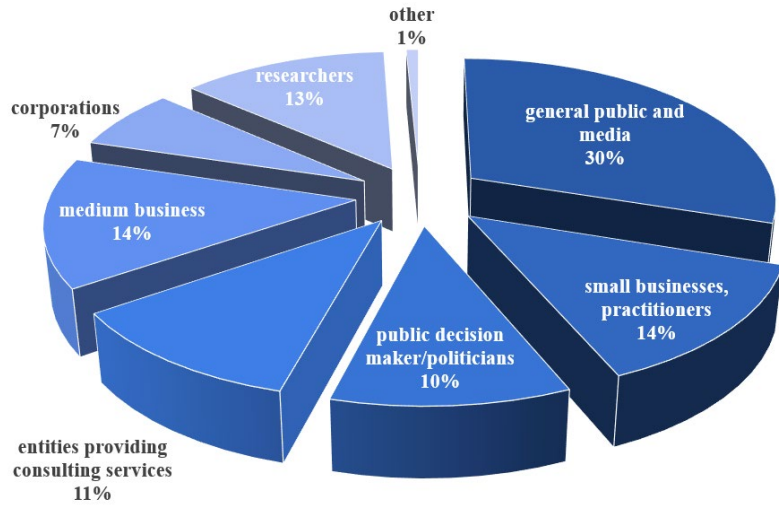
## EXAMPLES OF QUESTIONS IN QUESTIONNAIRE

- What climate information the end users apply for?
- How often end users apply for climate information?
- Who are targeted users/clients of the climate service?
- What climate database the respondents use for provision of climate services?
- What kind of climate service representatives of Hydrometeorological Service offer?
- What knowledge and skills are the most important in provision of climate service?
- What professional responsibilities in the climate service pose difficulties?
- What professional activities will be carried out in order to improve the climate services in Ukraine?

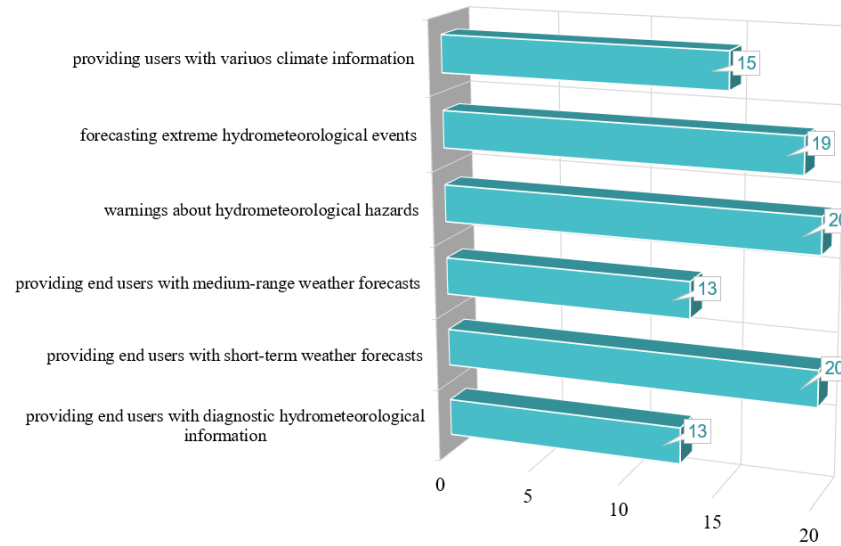


# Providers of climate services

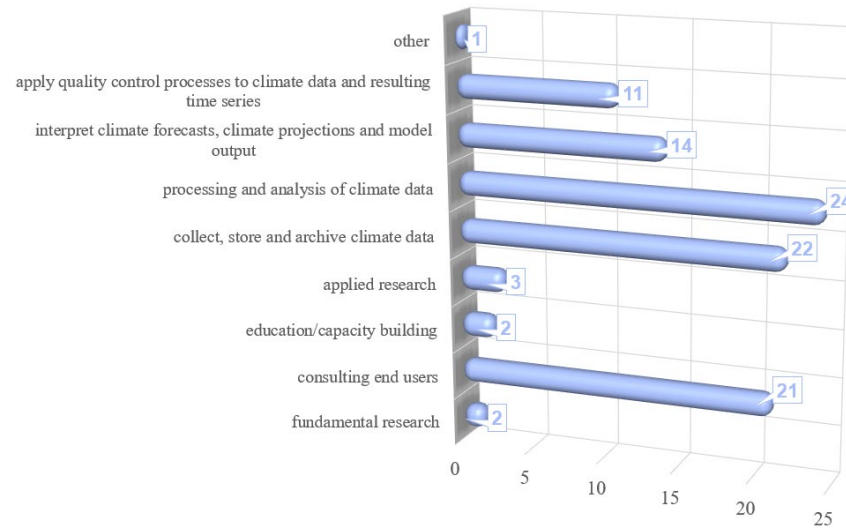
Who are the targeted user/clients of your climate service?



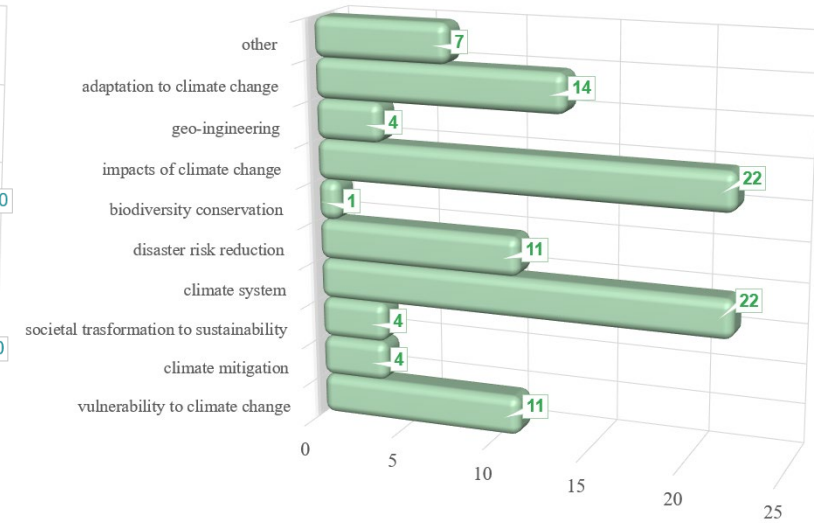
What are the tasks of your department in which you work?



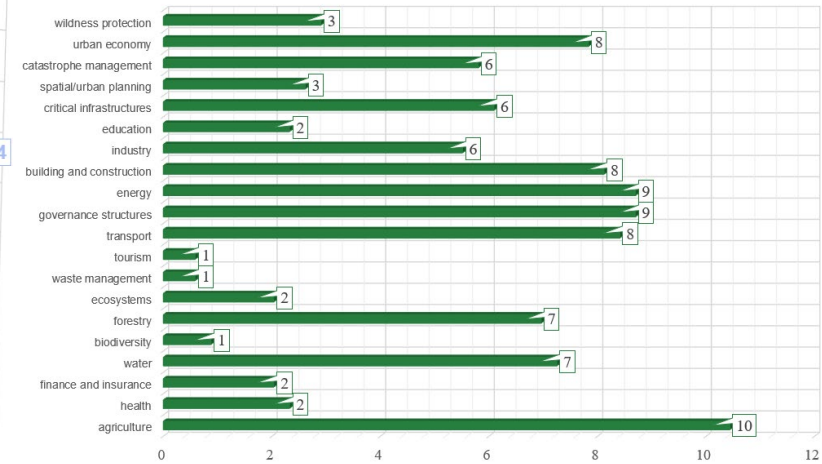
WHAT KIND OF CLIMATE SERVICES DO YOU OFFER?



IN WHICH THEMATIC FOCUS DO YOU PROVIDE CLIMATE SERVICE?



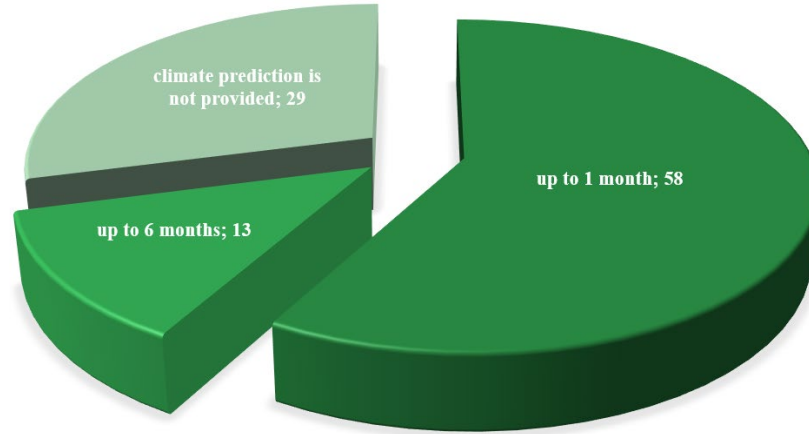
For which climate-dependent sectors of the economy do you provide climate services?



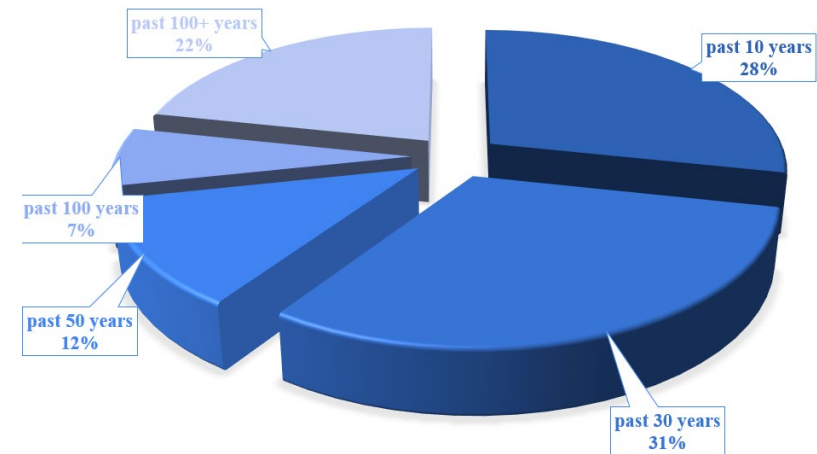


# Providers of climate services

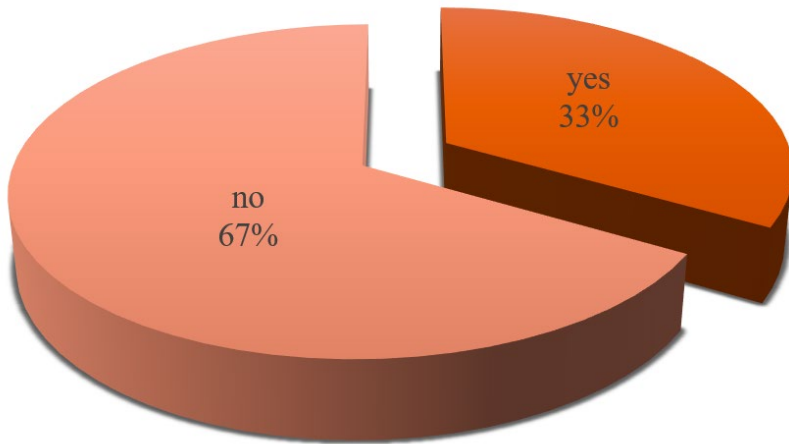
WHICH TIME HORIZONS FOR FUTURE CLIMATE DOES YOUR CLIMATE SERVICE TARGET?



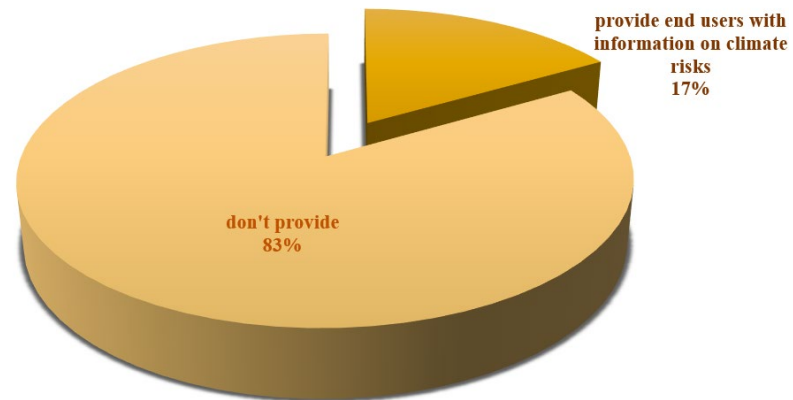
WHICH TIME HORIZONS FOR PAST CLIMATE DOES YOUR CLIMATE SERVICE TARGET?



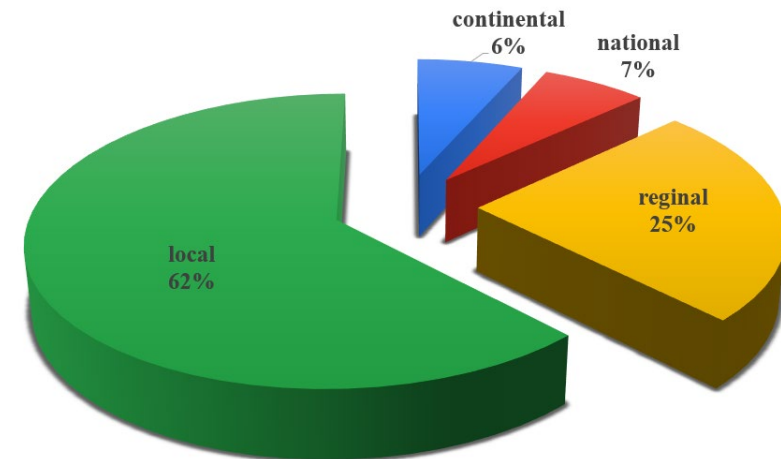
Does your unit use climate model products?



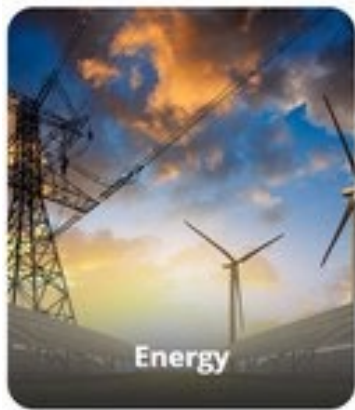
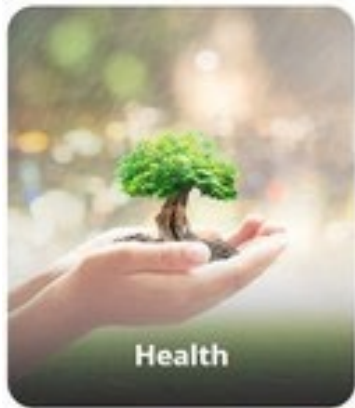
Do you provide end users with information on climate forecast uncertainty and/or climate risks?



What is the spatial scale of this service?



# Climate-dependent sectors



- Protected Areas and National Parks (37);
- Health Care (50);
- Building and Architecture (46);
- Water Management (53);
- Energy (25);
- Agriculture (65);
- Livestock (19);
- Urban Economy (24).

# Climate-dependent sectors

**QUESTIONNAIRE FOR HEALTH CARE REPRESENTATIVES**

**CONTACT INFORMATION**

1. First name and last name \_\_\_\_\_
2. City \_\_\_\_\_
3. Phone \_\_\_\_\_
4. E-mail \_\_\_\_\_

**SECTION 1. QUALITY OF PROVISION OF CLIMATE SERVICES**

1. Affiliation \_\_\_\_\_
2. The position you hold: \_\_\_\_\_
3. In your opinion, to what extent is the activity of your institution/facility vulnerable to the climate change impacts? Rate on a five-point scale.  
 5 - is at very high risk  
 4 - is at high risk  
 3 - vulnerable  
 2 - little vulnerable  
 1 - is not vulnerable

**SECTION 3. MEASURES TO BE TAKEN TO IMPROVE AIR CONDITIONING**

1. Based on your experience in the industry and the use of climate information, do you think it is necessary to reform climate services system:

<input type="checkbox"/> completely	<input type="checkbox"/> most of it	<input type="checkbox"/> only some services
<input type="checkbox"/> there is no need for this	<input type="checkbox"/> I hesitate to answer	

2. Information about the frequency or intensity of which extreme events do you need based on historical and/or forecast data? (Check all that apply):

<input type="checkbox"/> Strong wind	<input type="checkbox"/> heavy rain causing flooding (flash floods)	<input type="checkbox"/> insufficient rainfall
<input type="checkbox"/> extremely high temperature	<input type="checkbox"/> extremely low temperature	<input type="checkbox"/> heat wave
<input type="checkbox"/> Cold wave	<input type="checkbox"/> air pollution dangerous for human health	<input type="checkbox"/> fog/smog
<input type="checkbox"/> snowfalls and blizzards	<input type="checkbox"/> glaze ice	<input type="checkbox"/> thunderstorm
<input type="checkbox"/> hail	<input type="checkbox"/> tornado	<input type="checkbox"/> geomagnetic storm

3. What information about extreme climatic phenomena would you like to receive (Check all that apply):

<input type="checkbox"/> duration and intensity	<input type="checkbox"/> degree of uncertainty of climatic information
<input type="checkbox"/> possible economic loss	<input type="checkbox"/> possible damage to the health of the population

**SECTION 2. USE OF CLIMATE INFORMATION IN PROFESSIONAL ACTIVITIES**

1. What type of climate information do you usually use? (Check all that apply):

<input type="checkbox"/> don't use
<input type="checkbox"/> various types of information about extreme climatic events
<input type="checkbox"/> simple climate indicators
<input type="checkbox"/> indices of extreme
<input type="checkbox"/> compound of several simple climate indicators (for example, the equivalent effective temperature is an indicator that takes into account the complex impact of temperature, humidity and wind on a person)
<input type="checkbox"/> other. Please specify: _____

2. From what sources do you get the climate information? (Check all that apply):

<input type="checkbox"/> don't get	<input type="checkbox"/> Central Observatory	<input type="checkbox"/> Geophysical	<input type="checkbox"/> Regional Centers for Hydrometeorology
<input type="checkbox"/> hydrometeorological stations	<input type="checkbox"/> aviation stations	<input type="checkbox"/> meteorological	<input type="checkbox"/> Internet sources
<input type="checkbox"/> other. Please specify: _____			

3. How often do you use climate information for planning purposes?

<input type="checkbox"/> never	<input type="checkbox"/> rarely	<input type="checkbox"/> sometimes
<input type="checkbox"/> frequently	<input type="checkbox"/> always	

4. How often do you use climate information in your daily work?

**SECTION 4. EVALUATION OF EDUCATIONAL NEEDS**

1. Do you have basic climate education?

<input type="checkbox"/> none	<input type="checkbox"/> self-education	<input type="checkbox"/> massive open online courses on platforms such as FutureLearn, Coursera, EDX, XuetangX, SDGAcademy, Prometheus
<input type="checkbox"/> blended learning courses	<input type="checkbox"/> classroom courses for non-specialists	<input type="checkbox"/> junior bachelor in climatology
<input type="checkbox"/> bachelor's degree in climatology	<input type="checkbox"/> master's degree in climatology	<input type="checkbox"/> other. Explain what exactly.

2. Do you feel a lack of education in the field of applied climatology/climate change?

<input type="checkbox"/> Certainly	<input type="checkbox"/> Education is insufficient; there is a need for a course that comprehensively and deeply covers many relevant topics.	<input type="checkbox"/> A necessary course that would focus on practical aspects.
<input type="checkbox"/> Overall, the level of education is sufficient, but there is a need for specific consultations from experts.	<input type="checkbox"/> do not feel such a need	<input type="checkbox"/> Hesitate to answer

## EXAMPLES OF QUESTIONS IN THE QUESTIONNAIRE

- How vulnerable is your sector/institution/organization to climate change?
- Do you use the climate information?
- What climate information do you use?
- What benefits from usage of the climate information do you have?
- Are you satisfied with quality and quantity of the climate information?
- How often do you use climate information?
- What kind of the climate information do you need?
- Would you like to get educated in the climate change adaptation and mitigation?



# End users

Table 1. – How often does experts in climate-dependent economic sector interact with experts in weather, hydrology and climate services?

	Health care	Architecture and construction	Water management	Energy	Urban economy	Agriculture	Total	
never	12	4	7	1	7	21	52	19,8
rare	12	14	10	12	4	17	69	26,2
sometimes	16	14	11	6	6	9	62	23,6
often	3	7	8	2	1	11	32	12,2
always	7	7	17	4	6	7	48	18,3
	50	46	53	25	24	65	263	

Table 2. – In your opinion, how useful is the climate information obtained for you?

	Health care	Architecture and construction	Water management	Energy	Urban economy	Agriculture	Total	
Useless	2	2	3	1	0	11	19	7,2
Partially useful	16	13	21	10	3	24	87	33,1
Sufficiently useful	21	20	20	7	10	26	104	39,5
Absolutely useful	4	4	6	3	1	0	18	6,8
Difficult to answer	7	7	3	4	10	4	35	13,3
	50	46	53	25	24	65	263	

# End users

Table 3. – In your opinion, what needs of yours in climate information are not being met? (Q 1.9)

	Health care	Architecture and construction	Water management	Energy	Urban economy	Agriculture	Total	
Relevant and available climate information	4	30	14	46	1	14	109	25,3
Accurate, complete and timely information	24	2	11	15	6	48	106	24,7
Interpretation of the received information (risks, uncertainties etc)	17	1	5	5	2	22	52	12,1
Recommendation developed thoroughly	16	2	6	6	4	22	56	13,0
Expert decision support and risk assessment system	12	2	4	6	3	17	44	10,2
Difficult to answer	9	9	13	4	15	13	63	14,7
	82	46	53	82	31	136	430	

# End users

Table 4. – Are you willing to pay for higher quality climate service?

	Health care	Architecture and construction	Water management	Energy	Urban economy	Agriculture	Total	
Yes	6	6	6	4	1	19	42	16,0
No	14	12	17	8	10	12	73	27,8
Difficult to answer	30	28	30	13	13	34	148	56,3
	50	46	53	25	24	65	263	

Table 5. – What solution is convenient for you to solve production issues caused by climate changeability and change?

	Health care	Architecture and construction	Water management	Energy	Urban economy	Agriculture	Total	
climate-service expert working in your organisation	5	5	2	0	1	6	19	7,2
expert in climate-dependent economic sector with the essential knowledge and skills in climate service	15	14	19	8	7	19	82	31,2
payment for tailored comprehensive consulting by climate-service expert	6	6	10	6	4	18	50	19,0
Difficult to answer	24	21	22	11	12	22	112	42,6
	50	46	53	25	24	65	263	



Thank you for your attention!

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