Appendix 1 Focus group guide including the eight main questions used for all discussions with climate change professionals.

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| Q1. What types of knowledge/skills/attitudes/beliefs (i.e., competencies) tend to make you or a professional working in climate change successful in their job?Q2. What types of knowledge/skills/attitudes/beliefs (i.e., competencies) tend to make you or a professional working in climate change successful at climate change mitigation, adaptation (i.e., solving climate change)?Q3. What are the top two competencies you think students or new hires lack the most when entering the workforce in your area of work?*Presented the One Health Competencies Framework (Parmley and Clow, unpublished manuscript) to participants*Q4. Looking at our proposed One Health core competencies, do you think we are missing any really important pieces?Q5. Are there competencies that we have proposed that you think are not useful in your line of work?Q6. What types of training do you like to see from applicants applying to your organization? (E.g., practicum placements, publications, presentation experience, field experience)Q7. A challenge we face in developing One Health programs is focusing on depth versus breadth of knowledge. For example, my training is in epidemiology (depth), but One Health students are going to be trained with breadth across disciplines (generalist versus specialist). It is challenging to balance these two ideas. Do you think students that have breadth of knowledge are valuable?Q8. As climate change worsens, do you think there are competencies that will become more important than others?Concluding Q. Is there anything else that you would like to add before we conclude today’s discussion? |

Appendix 2 Number of coded references with example quotations from focus groups with climate change professionals to identify competency domains that are important for success in fulfilling their employment roles, meeting responsibilities, and/or for addressing climate change. These domains align with those in Figure 2. There are 10 major domains, 36 subdomains, and 19 minor domains (subcodes).

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| **Competency Domain** | **Number of Coded References** | **Example Excerpt** | **Coded References per (Sub)Domain** |
| **1 ACTION** | 0 | Only aggregated domain | 37 |
| 1.1 Acknowledge capacity limitations | 4 | “…one of the challenges that I see in terms of getting to the end of an objective is making sure that you can connect with the right people, you have the right people at the table, who all have many different hats that they’re wearing. It’s always been a longstanding challenge for the territory, just human resource capacity.” (North participant 1) | 4 |
| 1.2 Advocacy | 7 | “I think…advocacy and leadership are really critical when we’re dealing with so many demands on health and the healthcare system and so many competing emergencies and priorities…it’s really important for individuals in the field to be able to, yeah, have that voice, right? Recognizing competing priorities, but to be able to be brave and to advocate for programs and health policies…” (West participant 4) | 7 |
| 1.3 Affecting change | 8 | “Myself personally, I cannot solve climate change, the only way it’s going to happen is being able to get whatever message I have from the work that I do across in a way that both isn’t discouraging, and also I guess inspires people to see the value in changes, and working towards solutions” (West participant 1) | 16 |
| 1.3.1 Fulfill objectives | 3 | “I think execution is so critical, especially when we have so many different priorities, and actually getting stuff moving is really important” (North participant 2) | - |
| 1.3.2 Move forward in the face of uncertainty | 5 | “I think just the ability to take action because I see so many people collecting more information, more data, year after year…I think people are scared to take action because of all the variables…Climate change, we can never know all of the variables, things are going to keep shifting, so take action now and let’s change it later as things change” (West participant 5) | - |
| 1.4 Creativity | 2 | “…there’s no miracle recipe, but rather we have to invent them as we go along. But by very well knowing all the ingredients we have at our disposal, to be able to create synergies, create new recipes as we go along, a bit like a chef…So, innovation and creativity” (Québec participant 1) | 2 |
| 1.5 Mobilize resources | 2 | “…investment in the environment offices/departments across the province [is very low] so it’s hard to address these things if the resources aren’t allocated. I think our skill is going to be needed for how [to] mobilize resources to make some of these things we know need to happen, happen.” (Atlantic participant 5) | 2 |
| 1.6 Project management | 6 | “Project management and being organized is critical for all our work because we have strict deadlines and sometimes they’re really quick” (West participant 3) | 6 |
| **2 COLLABORATION** | 5 | “…it doesn’t matter how much knowledge and skills you have in climate change and the innovations…if you can’t figure out the collaboration…I’m finding it’s all about personality at the end of the day and working with people” (Ontario participant 3) | 62 |
| 2.1 Differing perspectives | 3 | “…because I come to the table from a public health side who sees climate change through a health lens, I feel like I have to see what I’m bringing to the table that is mine to contribute….there has to be a willingness to really understand that these issues are intersectional…we come to the table with our expertise but we have to know how to collaborate and negotiate with other people/disciplines in order to be effective” (Ontario participant 2) | 9 |
| 2.1.1 Competing interests | 5 | “…once they saw us as an ally rather than somebody coming in and criticizing them, that really helped in terms of recognizing that we had to work with them as an ally rather than a critique from the outside” (Ontario participant 2) | - |
| 2.1.2 Uncomfortable spaces | 1 | “I think climate change can be quite contentious at times. And so being able to listen, be open, and be able to navigate those types of uncomfortable spaces can be really important” (West participant 2) | - |
| 2.2 Relationship building | 10 | "I think that relationship building is a core function of the type of work that we do…if we’re not good at having conversations with other people, then the work is not gonna get done” (Atlantic participant 3) | 21 |
| 2.2.1 Networking | 4 | “So much of that is that coordination role of trying to connect with others…I try my best to coordinate across [the sector] so that I can get input from health, from emergency preparedness, from infrastructure” (North participant 2) | - |
| 2.2.2 Teamwork | 7 | “…It’s a teamwork, it’s not individuals doing this, it’s a group that’s doing this, we’re working as a group…we’re feeding off each other and it’s that collaboration that’s going to get us through these wicked problems and these hard times that inevitably happen” (West participant 3) | - |
| 2.3 Transdisciplinarity | 14 | “…you’ve highlighted some of the fundamental issues that are precisely compartmentalization in silos because it works well. I mean the university works like that, all organizations work like that because it is just more efficient. So, breaking down the silos is much easier said than done because it works well…we need to find ways to build bridges between the silos” (Québec participant 3) | 27 |
| 2.3.1 Community engagement | 5 | “I've been doing a bit of work with the agricultural sector, and it’s just been fascinating to hear how they adapted and responded to the heat wave. It’s been hugely informative and there’s been things there that I would never even thought to consider, so it’s been very valuable” (West participant 1) | - |
| 2.3.1a Indigenous knowledges | 2 | “In a moment where we don’t have any certainty, it’s necessary to create knowledge and then to create new ways of doing things…the openness towards new forms of knowledge, experiential knowledge… all the Indigenous knowledge, and the ability to listen, not only to the people with whom we work, but also to the people in communities, to listen to animals, to all the living beings in the territory, and to the territory itself.” (Québec participant 1) | - |
| 2.3.1b Youth knowledge | 1 | “And also youth, I think, bring forward perspectives that have really helped me and that are really pushing forward at a much more action-oriented pace” (West participant 5) | - |
| 2.3.2 Integrate knowledge | 3 | “And most of all, the ability to be able to work with other disciplines, being open to absorbing knowledge from other disciplinary experts, and being able to weave that into their own discipline” (West participant 6) | - |
| 2.3.3 Roles and responsibilities | 2 | “…understanding the roles and responsibilities of each of the sectors that are involved in the climate change work. So, we try to kind of stay in our lane, like what’s the role of health versus what’s the role of other ministries, or what’s the role of communities” (West participant 4) | - |
| **3 COMMUNICATION** | 7 | “I think communications broadly, you know, how to communicate across written visual, verbal, that’s something that can always be improved” (Ontario participant 1) | 34 |
| 3.1 Knowledge sharing | 3 | “…we got funding for planners, public health, and transportation people to work together…we shared stories as we went along, so a lot of it was getting people to share, not just what they were trying to do and the evidence they were using, but the process - what worked, what didn’t work, so having people share that.” (Ontario participant 2) | 3 |
| 3.2 Knowledge translation | 6 | “…well, how are you sharing your results back to your community? Or how are you going to the community to talk about this research? And so often…it’s so scientific, there’s such a disconnect between a lot of the research that’s going on and Northern end users” (North participant 2) | 24 |
| 3.2.1 Accessibility | 18 | “…that whole skill around writing and consolidating and putting forward information in a package, I think, is definitely something we work with students on” (Atlantic participant 5) | - |
| **4 EVALUATION** | 1 | “…the second skill…it’s really the evaluation of vulnerabilities and risks” (Québec participant 3) | 9 |
| 4.1 Costing | 2 | “…the difficult part is often on understanding the economic aspect of policy implications, but also on the costs of climate change impacts, and costing is usually one of the most difficult things that we encounter and it’s really difficult for us to try to quantify that” (Ontario participant 4) | 2 |
| 4.2 Risk assessment | 6 | “The ability to apply general risk assessment frameworks…some familiarity with ISO 31000 and related risk assessment practices is useful” (West participant 6) | 6 |
| **6 POLICY & GOVERNANCE** | 8 | “…it's also on the public policy side again, which is often on commitments, and it deals with…civics, but it still goes back to governance and understanding the roles of different levels of government” (Ontario participant 4) | 14 |
| 6.1 Civics | 4 | “…that political acumen, right? That’s something that I think, it’s hard to teach as a competency and skill because it is something that you kind of learn and develop overtime” (Atlantic participant 2) | 4 |
| 6.2 Financial literacy | 2 | “…the one I was thinking of is actually understanding the process of funding and where money really comes from…we get students coming in who don’t realize that’s a big part of any sort of project or role” (Atlantic participant 6) | 2 |
| **7 PROFESSIONALISM** | 2 | “I find it a little challenging sometimes…to be getting messages over text, and some emails that are in short form, and I’m like ‘this does not feel very professional to me’…” (Ontario participant 3) | 16 |
| 7.1 Accountability | 4 | “…the majority of organizations…want to check the “I’ve done it” box and then move on to something else. They don’t want to get involved. The goal is to change this culture, it’s not something that can be done overnight. It takes months and years, so it’s really necessary to be patient, I think. And determined.” (Québec participant 3) | 4 |
| 7.2 Confidence | 5 | “I find all of our students are afraid to talk to people…the [lack of] courage to seek out and talk to people in the public when they don’t have all the answers” (Atlantic participant 4) | 5 |
| 7.3 Detail-oriented | 2 | “I would say being detailed and thorough…if you’re not detailed and thorough, precise, in the message you send…there’s a lot of ramifications that end up hurting a lot of people” (West participant 3) | 2 |
| 7.4 Leadership | 3 | “I have the impression that what’s lacking a little bit is the development of leadership in One Health, despite everything…There is one who says ‘yes, we must plant more trees’ and then you say ‘no, no, that’s not what we should do’…So, I would focus on leadership as a really important skill” (Québec participant 2) | 3 |
| **5 REFLEXIVITY** | 0 | Only aggregated domain | 24 |
| 5.1 Adaptability | 6 | “I would add to the list ‘adaptability’. I feel like things are always changing and there’s always new things coming out and we’re also having to change out approach depending on what’s working and what’s not” (Ontario participant 3) | 6 |
| 5.2 Learning *from* | 3 | “…one person doesn’t know it all, and certainly you’re not going to understand what the communities know - and they know a lot - by sitting there” (Atlantic participant 5) | 3 |
| 5.3 Lifelong learning | 9 | “…being innovative and having a willingness to continuously learn, I think is also critical because it is such a rapidly developing field, it’s not like you can just walk in with a given skillset and just continue on, you have to be striving to continuously learn” (West participant 7) | 9 |
| 5.4 Willingness to fail | 6 | “Once again, there is no miracle recipe. You must try, you must make mistakes, you must try again” (Québec participant 3) | 6 |
| **8 RESILIENCY** | 1 | “…I don’t like to take the light out of people…you do need to give people hope and it’s challenging when you’ve been in the field…So, I think in a health context, it’s about resiliency for the people in the field, and resiliency for people that are learning” (Atlantic participant 5) | 9 |
| 8.1 Community resilience | 0 | Only aggregated domain | 2 |
| 8.1.1 Emergency management | 1 | “That’s like with emergency management with climate change, too, is that we’re so focused on the response that so many communities get left out in the recovery…the recovery part from these big climate change driven emergencies, it’s just not very good in general in Canada” (Atlantic participant 4) | 1 |
| 8.1.2 Risk management | 1 | “I think risk management skills are [important]…you know, recognizing the risk, putting in mitigation measures, evaluating [the effect], that cyclic part. And then getting to the end, and if you need to respond, hopefully the response is less or not as severe and your recovery is faster” (Atlantic participant 4) | 1 |
| 8.2 Personal resilience | 0 | Only aggregated domain | 6 |
| 8.2.1 Mental health | 2 | “It’s a pretty heavy subject. We hear about climate anxiety, climate grief, and it can get pretty heavy even when you’re working on the adaptation side of like dealing with these impacts and being resilient…we’ve had very high turnover in this group, and the people who were kind of less optimistic, more negative, did not stick around” (North participant 2) | - |
| 8.2.2 Flexible | 1 | “I generally find the type of people that I have worked with in adaptation that thrive and stay in this work are people who are flexible, and are positive and optimistic people” (North participant 2) | - |
| 8.2.3 Optimistic/ Positive | 1 | “I generally find the type of people that I have worked with in adaptation that thrive and stay in this work are people who are flexible, and are positive and optimistic people” (North participant 2) | - |
| 8.2.4 Doom and gloom | 2 | “The last one is resiliency. And again, this doesn’t just apply to climate change, it applies to a lot of environmental science. Dealing with gloom and doom on a global scale as a career, often can take a toll on people, and so having a resilient personality, and being able to manage some of that burden efficiently, I think, is a good competency to have” (West participant 7) | - |
| **9 KNOWLEDGE & LITERACY** | 10 | “I think we have to have a basic scientific literacy, so you have to understand what is climate change, and what the impacts are, so that’s just basic literacy” (Atlantic participant 5) | 41 |
| 9.1 Critical thinking | 5 | “…that really important approach of coming at it from a multi-disciplinary perspective is skills of critical analysis and critical thinking because, at times, there is just so much information that’s presented to you, you do have to be able to sift through and find the information that’s most relevant to you…” (Atlantic participant 2) | 7 |
| 9.1.1 Skepticism | 2 | “I think along with that is skepticism and critical analysis, so that’s in the data that you’re getting, but also…to the narratives that are surrounding what you’re looking at…” (West participant 1) | - |
| 9.2 Data proficiency | 2 | “We typically look for people who have the ability to asses the data sufficiency or the suitability of data…the ability to sort through data” (West participant 6) | 2 |
| 9.3 Understanding of complexity | 10 | “I think what is lacking is a full grasp of the understanding of the depth and complexity of both the problem that you’re trying to solve but also of the organizations you’re working within.” (Ontario participant 1) | 14 |
| 9.3.1 Systems thinking | 3 | “…the ability to look at systems at a macro level…being able to understand systems broadly and understand how different systems connect and interact with each other…how those different systems can work together to result in an impact is important for us in our work” (West participant 6) | - |
| 9.3.2 Downstream effects | 1 | “I think sometimes we end up with conflicting advice…and it’s taking that perspective of multi-hazards into account and communicating, and thinking about those unintended consequences of what you’re communicating and how they can be misinterpreted or misused…” (West participant 3) | - |
| 9.4 Health impacts (human, animal, ecosystem) | 3 | “I think for me, we have a number of students that come through here…the first thing is just ensuring they understand and know what the impacts of climate change are and the pathways by which those impact human health” (West participant 4) | 3 |
| 9.5 Disciplinary knowledge | 3 | “One of the gaps that I see in North specifically is we need more specialized skill sets, so, you look at what’s happening to infrastructure, we need people with the background and the knowledge…we need specialized capacity to tackle the changes that we’re seeing.” (North participant 1) | 3 |
| 9.6 Local knowledge of Territory | 2 | “Working with someone in adaptation who is from here, who’s observed climate change impacts, who understands what this means for the territory is way more valuable than like a…grad who just finished their Masters of Climate Change…I would much rather hire a local grad, who is born here” (North participant 2) | 2 |
| **10 FAIRNESS & JUSTICE** | 0 | Only aggregated domain | 17 |
| 10.1 Empathy | 2 | “…an understanding [and] appreciation of… diversity, which helps you understand different people’s priorities. As well as a little bit of compassion and empathy…And understand what those risks and priorities [are], and the weight of those risks to individuals” (Ontario participant 4) | 2 |
| 10.2 Equity | 6 | “Another really critical competency, I think, would be having a good foundation and understanding [in] intersectionality and equity considerations in the populations that you’re serving, and if you can apply that to how you’re thinking about what you’re proposing as a solution, or how you’re engaging with people…really understanding the dynamics of power and privilege” (Atlantic participant 3) | 6 |
| 10.3 Humility | 3 | “…the openness, the humility, the openness to other cultures, the willingness to go towards the other even if the other is not necessarily open to you” (Québec participant 3) | 3 |
| 10.4 Meet people where they are | 6 | “Trying to meet people where they are and really work with specific communities and tailor your engagement strategy to that community and that group…I think that’s a really important piece” (Atlantic participant 7) | 6 |
|  | TOTAL: 263 |