

FIELD PHILOSOPHY: DEWEYAN INQUIRY ON CLIMATE CHANGE ADAPTATION PERSPECTIVES

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In this study on environmental philosophy, I follow a Deweyan approach to practical philosophy, which aims less for a theorization by itself, for itself, but rather the deployment of methods of inquiry clarifying emerging contemporary environmental situations. As part of this article, I would like to report on a range of distinct perspectives on climate change for a given terrain. To do so, I will first draw a portrait of the specific milieu under consideration, namely the Regional County Municipality of Arthabaska in Quebec and its agricultural sector, and the methodological instruments employed. I will then mobilize this research material in order to construct a relevant epistemic object, by developing some critical reflections from the data obtained. The objective is to provide support for possible interventions in climate change adaptation that are yet to be fully conceived and deployed within this agricultural community, as in many others.

Cette étude de philosophie de l'environnement s'inscrit dans une démarche de philosophie pratique d'inspiration deweyenne, c'est-à-dire qu'elle vise moins une théorisation en soi, pour soi, que le déploiement de méthodes d'enquête contribuant à éclairer des situations environnementales émergentes de nos sociétés contemporaines. Dans le cadre de cet article, je souhaite rendre compte d'un éventail de perspectives distinctes en matière de changements climatiques pour un terrain donné. Pour ce faire, je dresserai d'abord un portrait du milieu à l'étude, soit la municipalité régionale de comté d'Arthabaska au Québec et son monde agricole, et des outils méthodologiques employés. Je mobiliserai ensuite ce matériau de recherche dans le but de construire un objet épistémique pertinent, en développant quelques réflexions critiques émanant des propos répertoriés. L'objectif est d'offrir un appui aux interventions possibles, en matière d'adaptation aux changements climatiques, qu'il reste encore à concevoir et déployer pleinement au sein de cette communauté agricole, comme dans bien d'autres.



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Despite several decades of fine theoretical work and philosophical debates, classical environmental ethics, for example the deep ecology worldview or the assertion of the intrinsic value of the non-human living as philosophical principle, does not seem to have had significant impact in practice.¹ Yet different stakeholders (citizens, researchers, policymakers, etc.) agree that we must respond effectively to the environmental crises we face nowadays, including those related to the pressing problem of climate change. The question of whether philosophy can provide any relevant contribution to these very real environmental problems then arises with seriousness. According to a posture of environmental pragmatism,² an alternative approach in the field of environmental ethics, philosophy may be relevant to the condition that it drives towards the resolution of practical environmental problems, which is not the case when it tries to resolve only theoretical debates within the discipline. As noted by Ben A. Minteer, who is adapting and revisiting John Dewey's famous words in *The Need for a Recovery of Philosophy*³:

¹ The French version of this paper was first published in 2018 by Milieu(x). I would like to thank the respective editors for authorizing this translation/adaptation in Dewey Studies. I would also like to thank Profs. Alain Létourneau, Carole Beaulieu and Allison Marchildon for their careful suggestions and helpful comments in preliminary versions of this text.

² See Andrew Light and Eric Katz, eds., *Environmental Pragmatism* (London; New York: Routledge, 1996); Bryan G. Norton, *Searching for Sustainability: Interdisciplinary Essays in the Philosophy of Conservation Biology* (Cambridge, UK; New York, NY, USA: Cambridge University Press, 2003); Bryan G. Norton, *Sustainability: A Philosophy of Adaptive Ecosystem Management* (Chicago: University of Chicago Press, 2005); Bryan G. Norton, *Sustainable Values, Sustainable Change: A Guide to Environmental Decision Making* (Chicago; London: University of Chicago Press, 2015); Nicolas Milot, Alain Létourneau and Laurent Lepage, "La gestion de l'eau par bassin versant au Québec: d'une théorie à sa pratique par les acteurs locaux," [From a theoretical definition of watershed management to its practice by local actors in Quebec]. *Territoire en mouvement*, no. 25-26 (2015), <https://doi.org/10.4000/tem.2803>; Ben A. Minteer, "Environmental Ethics, Sustainability Science, and the Recovery of Pragmatism," in *The Oxford Handbook of Environmental Ethics*, eds. Stephen M. Gardiner and Allen Thompson (New York: Oxford University Press, 2017), 528-40.

³ John Dewey, "The Need for a Recovery of Philosophy," in *The Collected Works of John Dewey, 1882-1953*, ed. Jo Ann Boydston (Carbondale and Edwardsville: Southern Illinois University Press, 1967-1990), MW 10: 46.

“*Environmental* philosophy recovers itself when it ceases to be a device for dealing with the problems of philosophers, and becomes a method, cultivated by philosophers *and others*, for dealing with the *environmental* problems of *society*.”⁴

Taking this claim seriously, environmental pragmatism advocates try to deflect, to a greater or lesser extent, the classic ontological disputes in environmental ethics (e.g. the debates over ecocentrism/anthropocentrism or over intrinsic values/instrumental values) by opening an interdisciplinary, pluralistic, and democratic space identifying a primary interest to the practical problems concerning human actions and its relationship with the natural world. The “practical” orientation of environmental pragmatism does not preclude the rigor of theorizing concepts. Saying otherwise would amount to misunderstanding what a Deweyan approach can be in the field of environmental philosophy. It may be to establish a certain reflexive inquiry between theory and empirical data by making the ethical project perhaps more credible:

Empirical research on environmental ethics can make an important contribution to the philosophical and social-science literature, bringing empirical data to bear on key questions in environmental philosophy while also demonstrating the relevance of the discipline for discussion of public policy and management. This opens up new possibilities for the field, particularly with respect to its utility for environmental professionals, which in my experience are often deeply interested in and intrigued by environmental ethics but find the highly theoretical tone of the discussion unappealing and the argumentation incompatible with the social-scientific approach to studying

⁴ Ben A. Minteer, *Refounding Environmental Ethics: Pragmatism, Principle, and Practice* (Philadelphia: Temple University Press, 2012), 4.

environmental values.⁵

Following this experimental point of view in practical philosophy,⁶ I report in this article on a range of distinct perspectives on climate change for a given terrain. To do so, I will first draw a portrait of the specific milieu under consideration, namely the Regional County Municipality (RCM) of Arthabaska in Quebec and its agricultural sector, and the methodological instruments employed. I will then mobilize this research material to construct a relevant epistemic object, by developing some critical reflections from the data obtained. The objective is to provide support for possible interventions⁷ in climate change adaptation that are yet to be fully conceived and deployed within this agricultural community, as in many others. This empirical pathway can be taken as an experimentation in the field of environmental philosophy.

⁵ Minteer, *Refounding Environmental Ethics*, 116.

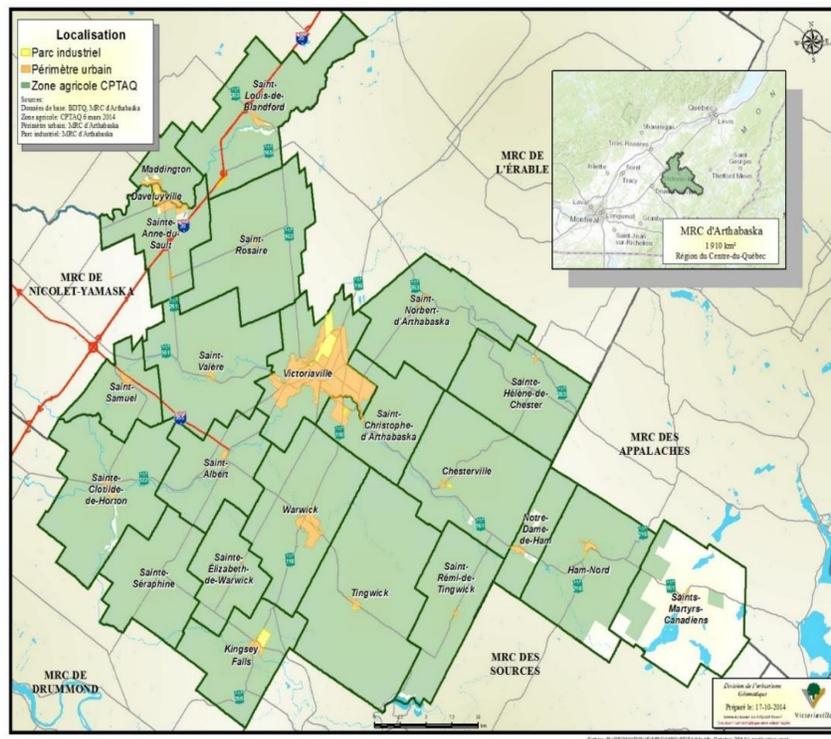
⁶ I define this pragmatist approach as follows: a field of reflection at the junction of several philosophical branches (e.g. ethics, political philosophy and epistemology) and other disciplines (e.g. environmental sciences, climate sciences and social sciences). It prioritizes the resolution of contextualized problems by the deployment of conceptual tools, in particular to clarify the ethical and normative issues encountered and to contribute to the formulation of democratic policies. In that sense, the decompartmentalized philosophical discourse can be nourished by other disciplines in the immediate periphery of particular questions. From this point of view, philosophy is not predominant over other disciplines, but rather a guide to reflect on different practices and knowledge.

⁷ The task of continuing in the direction of mitigation — human and political interventions to decrease the production of greenhouse gases (GHG) — is crucial to reduce the human impact on the climate. However, it should be noted that even if there is a rapid reduction in GHG emissions down to a zero threshold, which is doubtfully feasible in the short term unless an unexpected technological leap were to happen, the adverse effects of the accumulation of these gases would continue to be felt due to their extended life span in the Earth system and their remote effects on climate. This explains the inevitable adaptation to climate change, which remains a major challenge from which we cannot escape, at least for the short-medium term future. For more details on the physical basis of climate change, see: Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2013 – The Physical Science Basis*, Working Group I Contributions to the Fifth Assessment Report of the IPCC (Cambridge: Cambridge University Press, 2013).

Terrain’s specificities

The Arthabaska Regional County Municipality,⁸ also called *Victoriaville and its region*, is composed of 22 municipalities in the Centre-du-Québec region (Arthabaska, Bécancour, Drummond, L’Érable, and Nicolet-Yamaska) covering an area of approximately 1,900 km² within the physiographic regions of the Appalachian Uplands and the St. Lawrence Lowlands. The population of the RCM totaled 71,271 residents in 2014.

Location of Arthabaska RCM



Source: Arthabaska RCM

The decreed agricultural zone represents 91.53% of the total

⁸ This portrait is notably based on the *Plan de développement de la zone agricole* (PDZA) of the Arthabaska RCM. See the following document: MRC d'Arthabaska, *Plan de développement de la zone agricole de la MRC d'Arthabaska* (2016), <https://www.munidata.ca/upload/contentsFile/file/lng/2430fr-CA.pdf>

area of the RCM territory. Proportionally speaking, the agricultural sector,⁹ as well as the manufacturing sector, including paper and food production, is important in the RCM, with first-rank regional poles in the Centre-du-Québec regarding animal and plant production: apiculture (74%), sheep (46%), dairy cattle (36%), beef cattle (36%), swine (24%), cranberries and berries (53%), and forage (38%). Taking all (5) RCMs of the administrative region as a benchmark, maple syrup production in Arthabaska ranks in second place, with a proportion of 39%, which is not negligible. Some of the RCM's agricultural productions are present in world markets, helping to feed international populations.

As the climate system is a determining factor for agricultural activities, it seemed relevant to target this specific sector in a municipal context surrounded by rural life, like Arthabaska. From a specific regional perspective, in the Centre-du-Québec¹⁰ several impacts of climate change are anticipated: despite a climate that is becoming more favorable for certain crops, there are some negative consequences to be feared, particularly in regard to water scarcity caused by eventual droughts, resulting in, among other things, a decline in yield for vegetable and cereal crops, as well as in milk, poultry, and pork production.

Other consequences are expected, including a 15% to 20% decrease in maple sap production over the 2050-2090 period and an increase in mean temperatures of 3.2°C by 2050, resulting in species migration — a potentially positive impact

⁹ It should be noted that the Centre-du-Québec administrative region, of which the Arthabaska RCM is part, is the third largest agricultural sector in the province of Quebec. Taking GDP as an indicator (422 million CAD), the Arthabaska RCM ranks behind the Montérégie (1.1 billion CAD) and Chaudière-Appalaches (616 million CAD) RCMs. It surpasses Chaudière-Appalaches if the indicator is GDP per square kilometer (\$61,000 / km² vs. \$41,000 / km²). These three regions generate 41% of the total GDP of the province's agricultural production.

¹⁰ See the following document: Regroupement national des conseils régionaux de l'environnement du Québec (RNCREQ), *Faire face aux changements climatiques au Centre-du-Québec* (2014), http://www.rncreq.org/images/UserFiles/files/Feuilleton_RNCREQ_CentreQuebec.pdf

on forest growth — but also a resurgence and intensification of natural disturbances, a proliferation of pathogens and insect pests, and an increase in the frequency of extreme climatic events. In this regard, some adverse climatic events in recent years can be recalled, such as the heavy rains that led to flooding in 2003 in the Bois-Francs region, which in turn caused significant damage in the municipalities of Victoriaville, Tingwick, and Chesterville, or the spring thaw of 2014, which also caused flooding. Such events will become potentially more frequent in the region in the future. However, the Arthabaska RCM was somewhat spared by the 2017 spring floods that caused significant damage in several other locations in the province of Quebec. Climate change is expected to be a challenge for years to come in terms of mitigation as well as local and regional preventive adaptation.¹¹

Method of Inquiry

Drawing upon an interactive framework in qualitative research,¹² this study was developed as a form of “social inquiry”¹³ processing conjointly the empirical and theoretical collected data. These two research components were able to enrich each other in a nonlinear reflexive manner while a textual analysis was conducted on pertinent literature from philosophy, climate change adaptation sciences, and social sciences. Meanwhile, a field survey was carried out with different participants on the subject of climate change vulnerabilities and adaptation in the Arthabaska RCM.

The sampling of participants was developed using a

¹¹ See the following document: Ouranos, *Vers l'adaptation. Synthèse des connaissances sur les changements climatiques au Québec* (2015), <https://www.ouranos.ca/publication-scientifique/SyntheseRapportfinal.pdf>

¹² Joseph A. Maxwell, *Qualitative Research Design: An Interactive Approach*, 3rd ed., (Thousand Oaks, CA: Sage Publications, 2012).

¹³ John Dewey, *Logic: The Theory of Inquiry*, (New York: Henry Holt and Company, 1938), 487-512.

method called “snowball.”¹⁴ The term “snowball” is used because participants in the study, as well as other stakeholders, could assist in recruiting by suggesting pertinent potential contributors. To the possible extent, the proportional representation of a diversity of sectors in the community was the main criterion for participants’ selection. It remains difficult to quantify the exact number of people requested due to third-party recruitment exercised during the study. It can be noted, however, that more than 100 stakeholders or organizations have been directly solicited, with the mode of communication adapted to the sectors.¹⁵ A total of 21 participants completed the survey between the months of April and July 2015.

All of the comments collected are anonymized to fulfill the commitments made in this respect to the participants. A general portrait of their role in the community of inquiry is described in Table 1. The participants are identified with a code letter. They are also classified into subcategories to easily allow the reader to observe the distribution of the actors solicited. Generally speaking, they are either residents of the RCM of Arthabaska or are involved with it to various degrees as part of their professional functions,¹⁶ or they find themselves in both categories. The exception to this rule concerns an agronomist working in the field of climate change adaptation, designated here as Participant A, who seemed relevant to include in the context of this study given this participant’s expertise on climate change.

¹⁴ Alvaro Pires, “Échantillonnage et recherche qualitative : essai théorique et méthodologique” in *La recherche qualitative : Enjeux épistémologiques et méthodologiques*, ed. J. Poupart and *al.* (Saguenay: Les classiques des sciences sociales, 1997), 72.

¹⁵ The agricultural business sector was more difficult to mobilize at the outset. If more formal recruitment by email could work well with policymakers, professionals and researchers, farmers in the region seemed more difficult to reach in this way. A more personalized contact has therefore proven necessary to interest them in the project. This is equally true for some citizens who preferred to exchange first by telephone or in person for a contextualization of the study.

¹⁶ In some cases, the Arthabaska RCM territory is a workplace only. It should not be understood that these participants are necessarily engaged in the community at the regional level.

Table 1: Anonymized Participants

Residents	Participants C, G, I, P
Farm producers	Participant E (co-owner of a farming company in the region and deputy director general of a municipality) Participant K (agronomist and head of a farming company in the region) Participant S (co-owner of a farming company in the region)
Employees of municipalities and government departments	Participant D (mayor of a municipality) Participant F (regional adviser of a provincial department) Participant H (executive of a municipality working in the field of environment) Participant J (regional adviser of a provincial department) Participant M (deputy director general of a municipality and biologist) Participant N (municipal councilor)
Experts	Participant A (agronomist and climate change adaptation specialist) Participant B (entomologist and geneticist) Participant L (agro-economist) Participant O (project manager in the field of biological agriculture) Participant U (project manager assistant in the field of biological agriculture)
Teachers and student at the CEGEP level (pre-college university program)	Participant Q (college student studying in the field of agriculture) Participant R (college teacher and researcher in the field of agriculture) Participant T (college teacher in the field of agriculture)

Content analysis of empirical data began when the first questionnaires were received. A preliminary analysis of the data

collected made it possible to develop certain lines of thought, thus specifying the anticipated results. In a more systematic way, I proceeded to a complete reading of the documentation by treating the data according to a numbering scheme corresponding to the ten questions of the survey. A compilation of the data was carried out, taking the form of a synthesis of the comments collected. For this step, some features of the NVivo content analysis software were used to avoid blind spots when performing this synthesis. Only then could an interpretation of the content take place.

Reflexive Commentaries

A number of 21 stakeholders from different backgrounds agreed to participate in this study, thus allowing the examination of a variety of perspectives, from perhaps less informed opinion to expert opinion, on certain environmental issues in the region or elsewhere. The majority of participants fall between these two poles. Participants are interested, to various degrees, in different aspects of the environment: future generations, collective action, agriculture, organic agriculture, regional projects, public safety, public cost of disasters, recycling, preservation of ecological systems, conservation of resources, and world population growth. Some participants expressed concern about citizen neglect (like M), and others expressed concern because environmental issues “are largely ignored by the majority of the population and the media” (like L). Our sample of participants represents very few of those less likely to invest their time in an environmental investigation such as climate change. Interest seems variable, but it is present.

All participants in the study, with the exception of participant I who defends climate skepticism, argue that the issue of climate change is important. More specifically, it is referred to by Participant A as “the greatest challenge that humanity will face (and already faces) in the coming decades.” Other participants refer to it as “extremely important,” “very important,” “important,” and a “concern.” Several possible

reasons are given to explain the interest in this issue for this group of participants, especially in the medium and long term for the community: possibility of exacerbating other problems (ethnic conflicts, impacts on human health, and spread of diseases, especially among herds); decrease in the quality and quantity of available food; negative impacts on the economy and finances of citizens; responsibility towards future generations; loss of biodiversity; more frequent extreme climatic events; and water supply difficulties. Finally, for participant U, mitigation and adaptation measures must be taken in time to avoid major economic and environmental problems.

In terms of the possible impacts of climate change, Participant A, who works in the field and contributes to producing important documentation, particularly for the Province of Quebec territory, mentions certain projected effects for an agricultural zone including the region concerned by this study (2041-2070 horizon): an increase in mean temperature compared to 1971-2000 (1.7°C to 4.6°C), a two to four-week extension of the growing season that can have positive effects on crop yields (and the potential to introduce new plant species further north), more frequent intense heat in summer and less intense and frequent cold winters, reduced accumulation and duration of snow cover and, finally, more extreme rainfall and water stress during summer. For example, the yield of maple syrup production could decrease because of the less favorable climatic context; dairy production, also important in the region, could be affected by a decrease in forage due to droughts and by the spread of insect pests, potential vectors of new diseases for herds. Emerging crops, especially vegetable crops, may also not be able to withstand potential episodes of water stress or heavy rainfall, which is also true for all plant crops. For the time being, however, it is difficult to specify or quantify (according to Participant J), the future impacts and vulnerabilities of the region, which will depend, according to Participant A, “on the intensity and speed of these changes, the sensitivity of the agricultural system under consideration, and the adaptability of agricultural producers and other stakeholders in the sector.”

In recent years, the failure of the Conservative Party of Canada's¹⁷ government to recognize the problem of climate change has been an obstacle to our ability to act, if not an element that has literally increased the vulnerability of our communities, said Participant B. In this regard, we can recall Canada's withdrawal in 2012 from the Kyoto Protocol, which aims to reduce greenhouse gases globally, weaken environmental legislation, close scientific libraries, cut research budgets, and dismiss federal scientists and muzzle them. At the level of agricultural producers in the region, Participant G stated that there would be a lack of interest, or at the very least, a lack of information on the issue of climate change. The first of the two routes was observed when contacting potential farmer participants in this study. Added to this are difficulties of exhaustion and discouragement, major investments (C and N), and a succession that is becoming rare for farmers. The lack of genetic diversity for some crops, particularly in the cranberry sector, is a vulnerability factor, as is the risk of pest proliferation. The safety and health of agricultural producers, animals, and the general population could also be undermined if extreme weather events (heat waves, floods, droughts, ice storms, etc.) were to occur. Forests (windthrow), soils (erosion), water (degradation of drinking water sources), and infrastructure (breakage of buildings, roads, and power lines) could also be negatively affected.

Participant T said that the agricultural sector could be less affected by climate change because of the importance of livestock production in the region. While it can be argued, as T states, that "some perennial forage crops for livestock feed" may have a higher yield potential, it should also be remembered that periods of prolonged heat waves and droughts could, as A asserts, "have a significant impact on the productivity (weight gain, milk or egg production, among others), reproduction, health, and welfare of livestock, and may even cause their death." Also, Participant P seems to confuse the phenomenon of

¹⁷ Participant B refers in the responses to the Canadian federal government under Stephen Harper between 2006 and 2015.

global warming with that of ozone layer depletion.

In terms of resilience, according to Participant A, agricultural producers, with the support of other stakeholders, have demonstrated a good capacity to adapt to both climatic and non-climatic stressors, including economic ones. However, just because seeds adapt to environments, such as K states, or because the sector has adapted well so far, as N says, it does not mean that we cannot actively prepare for the current climate change. Several measures already contributing to the resilience of the RCM and its agricultural community were outlined by participants: good organization at the municipal level (specifically Victoriaville and its sustainable development program), a well-developed economic system, a diversity of agricultural production, access to the expertise of research centers (CETAB+ and CISA),¹⁸ and qualified stakeholders. Several participants also mentioned the relevance of collective action as an element that can increase community resilience. Other stated elements (by F and O), such as invasive species control and maple syrup calendar adjustment, should be understood as resilience factors only by extension by placing them more directly as climate change adaptation strategies.

A majority of participants highlighted various actions undertaken in the RCM, not directly related to climate change but to sustainable development, of which Victoriaville would be the cradle of Quebec, according to the slogan.¹⁹ On this subject, Participant E questions the financial and marketing approach combined with the sustainable development actions in place in the region: waste management, research activities in organic agriculture, park development, fleet of electric cars for municipal employees and public transit (TaxiBus) in Victoriaville, awareness-raising activities, and a sustainable housing program. According to several participants (E, G, L, R, O, U), there are few targeted climate change adaptation

¹⁸ *Centre d'expertise et de transfert en agriculture biologique et de proximité, Centre d'innovation sociale en agriculture.*

¹⁹ Victoriaville, "cradle of sustainable development" can be read in various places, due in particular to initiatives in the area of recycling and sustainable development.

strategies. H and N note, however, that a GHG mitigation plan has been in place since 2011 in Victoriaville and that a climate change adaptation plan were awaiting funding in 2015.²⁰

A few ethical issues were identified by the group of participants: Participant B raised the conflict between science and politics that had caused damage to the Canadian science institution in recent years. The Canadian science institution was likely disturbing to the Conservative federal government, which was presumably looking for economic prosperity at all costs. Participant E highlights the at least seemingly apparent problem of political actors sometimes favoring ideological interests over other considerations. Participants K and O mentioned that the organic sector is interested in climate change, but Q says the sector is not representative of the farming community. Other participants (L, M, R) testify, in one way or another, to the lack of interest or ignorance of the general population regarding the issue of climate change. From a municipal point of view, Participant N mentioned the possible tensions between deforestation for the construction of infrastructure (sports, industrial, residential) and the conservation or creation of green spaces.

In terms of challenges related to climate change for the region, several participants (G, P, O, R) maintain that one of them will certainly be educating the population about this phenomenon and Participant A evokes the relevance of accompanying (agricultural) stakeholders in an effort to identify courses of action. Other elements that seemed to be a priority were also mentioned by the participants: consultation between different stakeholders; research on climate change, its impacts and opportunities for agricultural activities; better management to cope with extreme weather events; the risk of greater pressure for the use of pesticides; the acceleration of silting up of an important drinking water source in the region

²⁰ It should be noted, however, that at the time this article was rewritten in English, a climate change adaptation plan was being developed to protect an important drinking-water source (Beaudet Reservoir) in the city of Victoriaville.

(Beaudet Reservoir); and access to insurance and risk management coverage.

With respect to recommendations for better adaptation, participants suggested the following avenues, among others, which were not fully addressed in previous responses: reduce our dependence on oil; encourage active transportation and public transit; reduce street width; control GHG emissions and enforce environmental laws for the region's industries; invest in geothermal energy; ration drinking water; encourage domestic agriculture, agricultural education, and research; promote sustainable and organic farming practices; consult available documentation; and, finally, participate in seminars and information days.

Concluding discussion

The heterogeneity of the participants involved in this study and their varying degrees of knowledge, from experts to laypeople, were observed in addressing the issue of climate change. It is important to question the expertise of the stakeholder to judge the credibility of the answers, and this, of course, by carefully examining the discursive content to determine its relevance and acceptability. The fact that a layperson formulates an opinion does not immediately discredit the remark, but nevertheless requires special attention. That said, expert opinion does not guarantee the truth. It can be fallible in many ways.

Participants in the study expressed interest in environmental issues at various levels. Most are well documented on several environmental issues, including climate change, sometimes from a personal perspective, sometimes from a professional perspective. However, this is not always the case, as it can be observed, for example, with Participant P, who appears to confuse the problem of anthropogenic climate change with the problem of ozone layer degradation, which is in the direction of what Participant L argues when stating that the problem of climate change would be misunderstood. The comments of some participants (e.g., S and N) are sometimes

incomplete or not very explicit and suggest a lack of knowledge on the subject of climate change. Also, Participant I, in particular, supports throughout the answers the climate sceptic theory,²¹ according to which humans are not responsible for the phenomenon of climate change, a theory that remains to this day refuted by the scientific community working on the problem of climate change. Without proposing any credible leads, Participant I unnecessarily polarized the discussion by appealing to several fallacious arguments (ad hominem, straw man, false analogy, appeal to tradition, appeal to conspiracy, red herring, etc.), and by using nicknames such as “disciples of the green religion”, “*peurologues*” (fear mongerers), “*verdoyants*” (tree huggers), and “*réchauffistes*” (global warming believers). For Participant I, “nature is on our side.” Although this participant does not put it this way, we can draw from the remarks that certain opportunities related to climate change in the short and medium term for the agricultural community

²¹ A survey conducted by the *Centre interuniversitaire de recherche en analyse des organisations* (CIRANO) and the *Institut de l'énergie Trottier* among 1,010 Quebec respondents indicates that an average of 25%, or one in four Quebecers, maintains that global warming is not scientifically proven (6%) or that it is not caused by human activity (19%). The proportion of climatologists differs according to the administrative region surveyed, climbing to 44% in the greater Quebec City area, compared to only 21% of residents in the greater Montreal area. The proportion of climatologists in the Centre-du-Québec region where the research field is located is 25.2%, indicates a co-author of the study in a correspondence (Ingrid Peignier, July 23, 2015). This is very close to the Quebec average. According to this study, more men (28%) than women (22%) are skeptical about climate change. More climatologists have a primary, secondary or college education (27%) than a university education (20%). Respondents (30%) with family incomes under \$40,000 are more likely to be represented. Finally, Anglophones (16%) are less likely to be climatologists, compared to Francophones (25%) and Allophones (34%). For more details, see this document: Nathalie De Marcellis-Warin and *al.*, *L'énergie et les changements climatiques : perceptions Québécoises* (2015),

<http://www.cirano.qc.ca/files/publications/2015RP-08.pdf>

To continue this analysis, we can also refer to the Yale Climate Opinion Maps. Regarding the federal electoral district of Richmond-Arthabaska, it states that 38% of the population surveyed does not believe that global warming is anthropogenic in nature. See: “Yale Climate Opinion Maps,” Yale Program on Climate Change Communication, accessed July 26, 2018, http://environment.yale.edu/ycom/canada/2016/?lan=both&est=real_hu man&type=value&geo=riding&id=24061

could arise only on the condition that certain critical thresholds are not reached. This issue of opportunities and critical thresholds is raised by Participant A, who avoids obscuring the adverse impacts of climate change on the agricultural sector, which are largely addressed by several other participants also identifying relevant elements of vulnerability, resilience, and adaptation for the region under study.

This leads to believe, as do several stakeholders in the study, that adaptation to climate change in the Arthabaska region, and most probably in many others, should, at one time or another, involve an ambitious initiative to raise awareness and mobilize²² the various sectors of the population that do not seem to pay sufficient attention to the phenomenon of climate change. To this end, the participants' comments indicate, intentionally or unintentionally, the need to develop critical thinking on the issue of climate change, according to at least three possible stakeholder profiles: the problem of climate change as i) a unclear problem, ii) an irrelevant problem, and iii) a false problem. Scientific outreach activities would undoubtedly be enlightening to promote a better understanding by the population on the problem of climate change. This would aim in particular to open up possibilities other than that of a single "consumerist lifestyle" (L).

Some adaptation strategies could therefore be thought of in terms of environmental education, ensuring that they are accompanied by mitigation policies emanating from the serious will of decision makers. Adaptation measures should not be limited to economic and environmental plans alone. A more inclusive perspective could include other aspects of the

²² The September 2019 world climate strikes are an excellent example of such efforts. Between September 20 and 27, millions of people, from large cities and smaller municipalities around the globe, took to the streets to ask the world's leaders for climate action. On September 27, in Montreal alone, nearly half a million people, according to organizers, marched through the streets to demand ambitious actions to fight the climate crisis. This would make it one of the largest demonstrations in the history of Quebec. More locally, in Victoriaville, about 1,000 people participated in this march, far exceeding the expectations of the organizers, who initially hoped to gather about a hundred people.

adaptation process (social, scientific, technological, psychological, health, etc.). It would also be desirable to provide these policies with a *climate change adaptation ethics*,²³ i.e. a reflexive instrument to guide action and clarify eventual tensions or conflicts between values and/or norms in the context of climate change adaptation planning.²⁴ According to this perspective, ethics is much more than a narrow formula of recommendations for "right or wrong" behaviours in relation to climate change, nor is it reduced to the edification of idealized conceptions of the Good, the Just and the Virtuous, which are said to be applied *a posteriori*. Ethics is considered here above all as an interpretative model of contexts of action from which emerge a plurality of values and norms to be mobilized to reflect on complex, ambiguous, difficult, or indeterminate situations. If there are already discussions on the disappointing results of standard normative theories in the face of climate change moral complexities,²⁵ this does not mean that ethical concepts should

²³ This interdisciplinary issue may arise in a variety of ways from a moral point of view; for example, from a perspective of virtue ethics; distributive justice; intergenerational and global responsibilities; human rights; or from a pragmatist perspective in climate policy. To date, work in climate ethics has focused primarily on mitigation matters (i.e. emissions reduction principles of justice) and remains fragmentary in the field of climate change adaptation even in recent contributions seeking to expand climate ethics beyond the Anglo-Saxon horizon, where it is largely confined today.

²⁴ Within the horizon of environmental pragmatism, worth noting is an ongoing research project (2017-2020) aimed at developing sustainable climate change adaptation strategies at the scale of an RCM in Quebec (project leaders: Profs. Alain Létourneau and Isabelle Thomas). See Alain Létourneau, "L'adaptation aux changements climatiques devant la gouvernance de l'eau". *Cahiers de géographie du Québec* 61, no. 174, 2017 (2018): 447-467; Alain Létourneau, "L'autogouvernement et la gouvernance. Réflexion à partir d'un projet d'adaptation aux changements climatiques sur le territoire de la MRC Memphrémagog". *Sens public*, August 2019, <http://sens-public.org/article1408.html>.

²⁵ See the following:

Andrew Light, "Climate Ethics for Climate Action," in *Environmental Ethics: What Really Matters*, eds. D. Schmidtz and E. Willot (Oxford: Oxford University Press, 2011), 557-566;

Michel Bourban, "Vers une éthique climatique plus efficace : motivations et incitations," *Les ateliers de l'éthique/The Ethics Forum* 9, no. 2 (2014): 4-28, <https://doi.org/10.7202/1026675ar>;

Dale Jamieson, *Reason in a Dark Time: Why the Struggle Against Climate Change Failed — and What It Means for Our Future* (Oxford; New York:

be excluded from climate policy. On the contrary, as suggested by Stephen M. Gardiner, if the “ethical” category is absent from political interventions on climate change, drifts in governance could generate potential systemic problems within our institutions (moral corruption, tyranny of the contemporaries, etc.). In this sense, an important ethical problem seems to emerge from the comments and suggestions of participants in this study: how should we act to resolve a problematic situation, such as climate change, when a critical mass of people do not see the pertinence of the problem (or have no interest in recognizing its importance), particularly when some of these people are decision makers with a large capacity for action?

To demagogy, we may oppose pedagogy in order to make possible depolarized communication, shared democratic experiences as well as the creation of a “public”.²⁶ From this point of view, the role of the pragmatist philosopher is to ensure a committed path of experimental learning and creative processes, not complacent to established powers, and the adoption of a critical posture when important interests are at stake. To this end, the construction of democratic spaces in the public sphere is necessary to position informed educational practices in a context where citizens are confronted, on the one hand, to expert discourses, and, on the other hand, to campaigns of misinformation, alternative facts, and misleading opinions (Participant I), far too present. This type of complication requires the public to have a sufficient level of climate literacy,²⁷ provided by the social sciences and a plurality of other disciplines.

Oxford University Press, 2014);

Stephen Mark Gardiner and David Weisbach, *Debating Climate Ethics* (New York: Oxford University Press, 2016);

Pierre André and Michel Bourban, “Éthique et justice climatique: entre motivations morales et amoraux,” *Les ateliers de l'éthique* 11, no. 2 (2016): 4–27, <https://doi.org/10.7202/1041764ar>.

²⁶ John Dewey, *The Public and Its Problems* (Athens: OH: Swallow Press, 1927).

²⁷ Rachael Shwom and *al.*, “Integrating the Social Sciences to Enhance Climate Literacy,” *Frontiers in Ecology and the Environment* 15, no. 7 (2017): 377–84, <https://doi.org/10.1002/fee.1519>.

The confusion, sophistry, and bigotry surrounding the public debate on anthropogenic climate change are signs of a current need for the input of the critical methods of philosophy. Certainly, particular philosophical attention should be turned first to human affairs and its problems if one wishes to ensure that the discipline is pragmatically relevant and effective, especially in the field of climate change where the measured urgency faces political inertia, in sum:

the task of future philosophy is to clarify men's [and women's] ideas as to the social and moral strife of their own day. Its aim is to become so far as is humanly possible an organ for dealing with these conflicts. That which may be pretentiously unreal when it is formulated in metaphysical distinctions becomes intensely significant when connected with the drama of the struggle of social beliefs and ideals.²⁸

²⁸ John Dewey, "Reconstruction in Philosophy," in *The Collected Works of John Dewey, 1882-1953*, ed. Jo Ann Boydston (Carbondale and Edwardsville: Southern Illinois University Press), 1967-1990, MW 12: 94.

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