Chapter 4: Drivers of Change, Visions of the Future and Assessing Adaptive Capacity

Jordan Tesluk, Ralph Matthews, Georgia Piggot, Robin Sydneysmith

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4.1 Drivers of Change

A key part of the social science research was examining the way that key drivers of change fit into respondents' view of the future of their community and the region.[1] Perceptions of the future of the region and of individual communities span a wide range of views, and a vast array of opinions and perspectives were provided during the social science research. This chapter examines some of the key themes in visions of the future on a regional level, with attention to some of the distinct community issues in Lax Kw'alaams, Prince Rupert, and Terrace. This summary is limited to identification and discussion of broad themes and key issues, and more detailed and contextualized examinations of each community are provided in the individual community level reports included as Appendices 4.1 and 4.2 for Prince Rupert and Terrace respectively. (The community report for Lax Kw 'alaams is, at this time, confidential).

Respondents were asked to identify the factors (or drivers of change) they believe will have the strongest influence on the future of the community (see Figure 4.1). First Nations treaty settlements and rights and title were identified as the most important factor in determining the future of the region, with 67% of respondents placing it among the three most important drivers of changes and 37% identifying it as the single most important driver of change in the future of the region.[2] First Nation treaty settlements and rights and title were top-ranked driver of change in both Prince Rupert and Lax Kw'alaams, but were ranked fourth in Terrace. However, in all three communities, treaty settlements and rights and title were ranked closely to the other three top-ranked drivers of change. Additionally, when asked to rate key drivers of change as either negative or positive, respondents in all three communities rated treaty settlements and rights and title as predominantly positive sources of change on the future of the region (see Figure 4.2).

[1] A summary of respondents' views on valued resources and key community issues is found in Chapter 3. The full details of the sampling methodology and the characteristics of the people interviewed are outlined in Appendix 3.2.

[2] Respondents in Prince Rupert and Terrace focused on treaty settlements, while respondents in Lax Kw'alaams preferred to provide rankings and ratings of rights and title over treaty settlements.

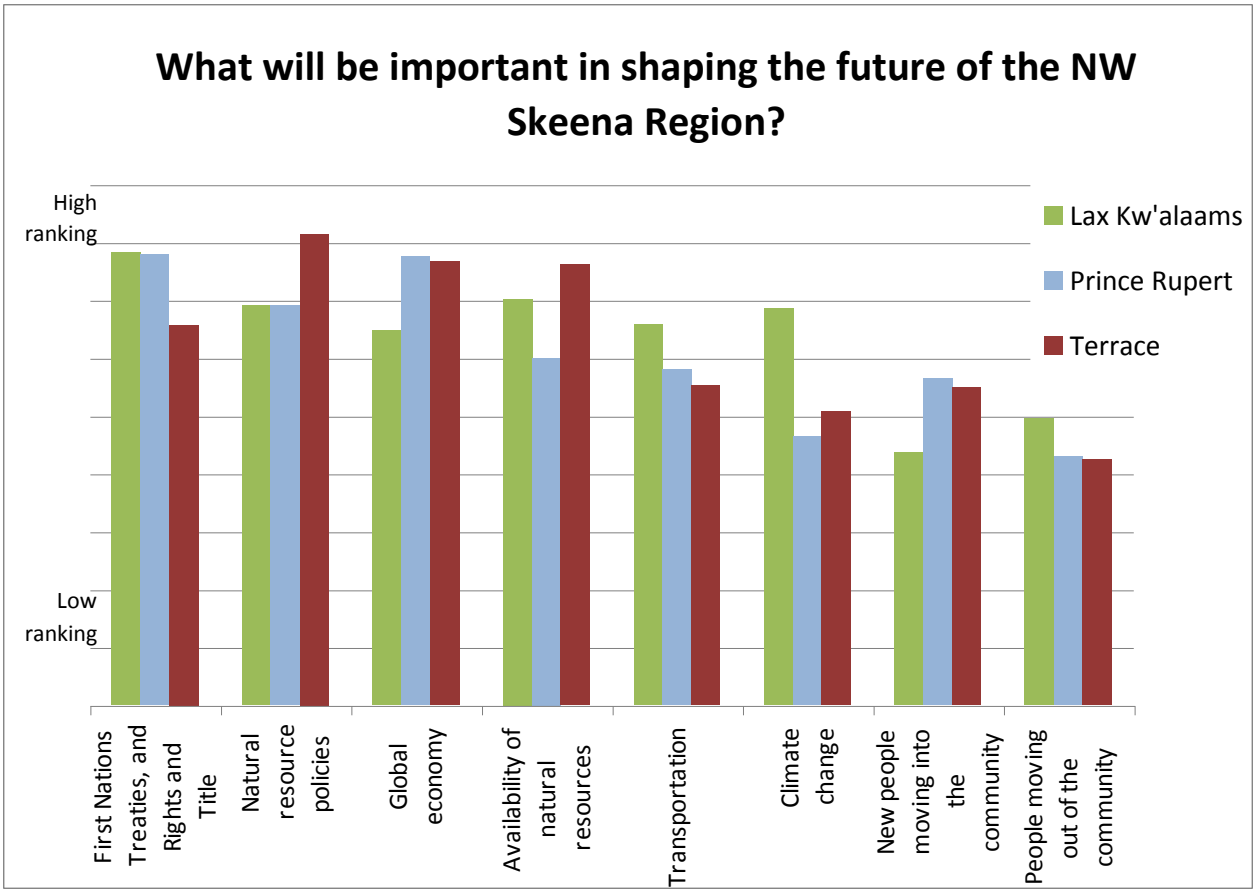

Figure 4.1: Community based rankings of issues of influence for the study area.

Respondents in Prince Rupert and Terrace perceive treaty settlements as essential ingredients in enabling future development and economic activity, and view the formation of new partnerships with First Nations communities as important steps in improving opportunities for both settler and First Nation communities.

> "*Because having viable, mutually beneficial partnerships with those individuals, having a real partnership, is absolutely key to moving those initiatives forward. And until that happens in earnest, there's no way for that economic impact to be flooding back into the community.*" *(Prince Rupert respondent)*

> *"There's a lot of First Nations traditional territory and I think without that being settled, it makes it difficult for those industries to, for major investment, to come in. I don't know, like, people can work with First Nations; they always have. But I think when you're talking about huge industrial players, there might be a bit of trepidation, right. That-- they'd be-- partner up with them but there's a lot of extra work they have to do. So if things were settled then they know exactly what they're dealing with." (Terrace respondent)*

> *"What if out of every First Nation community, we could get a group, a leadership group, of well educated professionals, to guide---to provide vision and strategic direction for the future?" (Terrace respondent)*

Lax Kw'alaams respondents attached similar levels of importance to First Nation treaty settlements and rights and title, and rated them in a similar manner as the other two communities. However, they viewed these drivers of change in a different manner, and focused on an increasing an ongoing role of First Nations in land-use and decision making rather than defining boundaries to First Nations' roles through formation of conclusive agreements. Lax Kw'alaams respondents also expressed a greater sensitivity to the difficulties involved in the processes of treaty settlements and issues of First Nations rights and title.

> *"… You've got to be involved in every movement that there is, no matter who it is that comes in to do things within our territory, in any development..." (Lax Kw'alaams respondent)*

> *"Gosh. In… meetings that I've attended, there's always a barrier of aboriginal rights and title. That's a big wall, …a big barrier …that's going to delay any process [and] makes it a bit harder to work with other communities. Yeah, all the concerns are general concerns for each community. But for them to team up together and work together, yeah, it's difficult." (Lax Kw'alaams respondent)*

Natural resource policies were the second most influential factor, with 54% of respondents placing it among the three most important drivers of change and 14% rating it as the single most important driver in the region. The global economy was perceived as the third most important factor, with 22% of respondents placing it among the three most influential drivers of change and 8% identifying it as the most important driver in the region. Together with the availability of natural resources, the global economy and natural resource policies formed a highly-ranking and influential group of interrelated drivers of change in the views of the respondents.

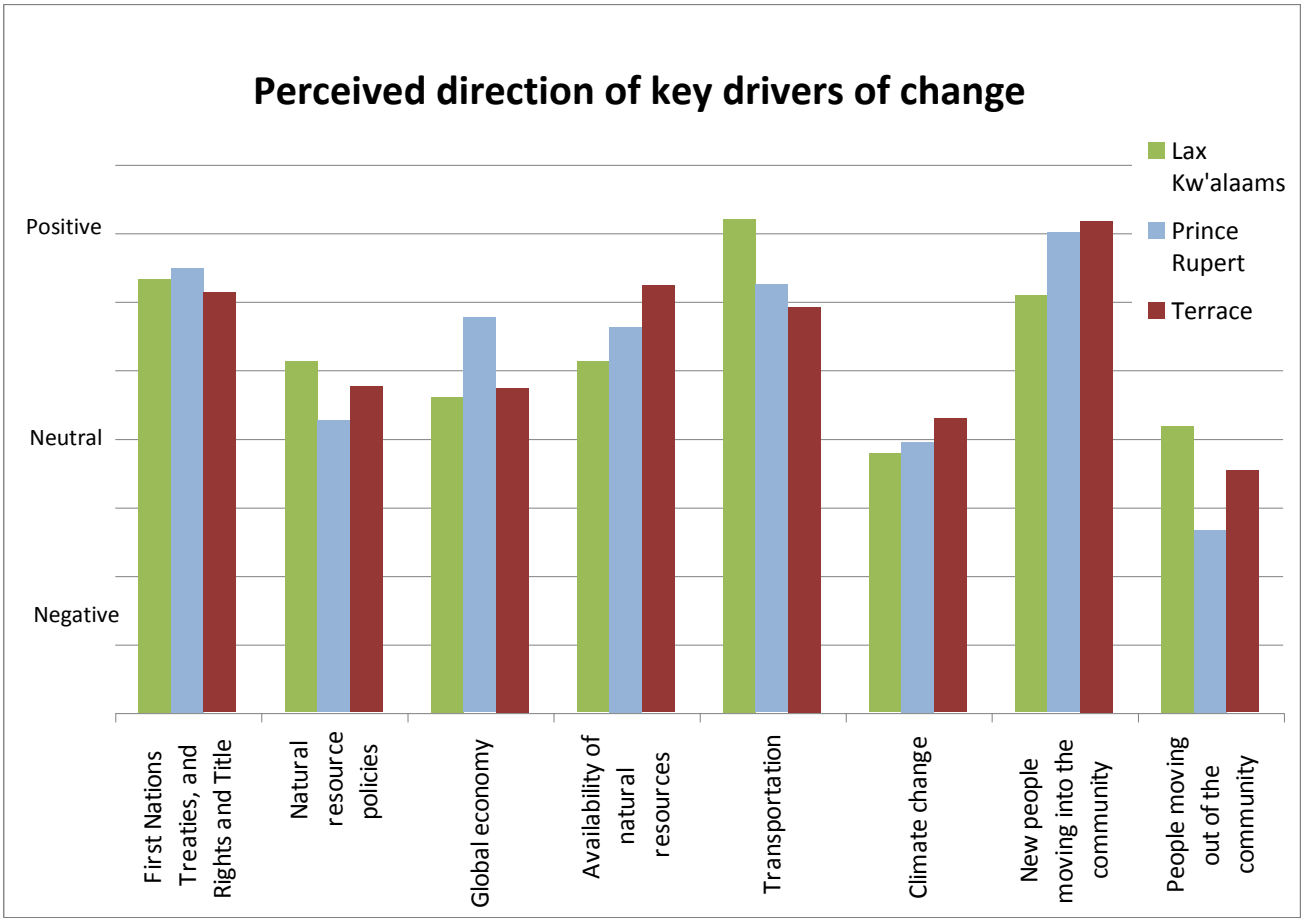

Figure 4.2: Perceived direction of key drivers of change.

In Prince Rupert and Terrace, the perceived influence of global economy, and policies are linked to visions of the two communities as increasingly important players in a growing northwest global resource economy. Prince Rupert respondents placed heavier emphasis on the influence of the global economy than other communities, focusing on the role of their community as a shipping port and nexus point for the transportation of goods. In contrast, Terrace respondents tended to orient their visions of the future around resource development projects in immediately surrounding areas and the role of the community as a service provider to new development initiatives.

> "*Okay, well, I think the future of Prince Rupert is bright, even though I said all that negative stuff that we've gone through and we have gone through that. Prince Rupert has had a very, very tough time in the last ten years. If only we could market the products that we have for sale in Canada, to China and India better, that port would flourish even more. And I believe that's going to happen*." (*Prince Rupert respondent*)

> *"I think if only we could get a reliable, dependable and secure natural resource industry, I guess I would say, that allows for Terrace to not only grow but to attract the right people to come here. And invest dollars and become a, you know-- the whole Northwest actually, not just Terrace." (Terrace Respondent)*

> *"If only all the ideas that have been coming forth, people are presenting bioenergy, biocoal, there's talk of water power, swift power. If all-- these all came together, I think we would be very successful community."(Terrace respondent)*

Prince Rupert and Terrace respondents shared similar views of the future of their communities and the region, with distinct ideas about the specific role that their own community would play in economic and industrial development. Although expectations tended towards optimistic outcomes, there were also many respondents that viewed resource trade and increased involvement in the global economy as a negative course of development. Distinct feelings of geo-political isolation were expressed by numerous respondents that feel that control over resource-use and policy directions is determined by the urban core in the south of the province, and the direction of future development may run counter to local interests. In contrast, respondents that perceived a strong role for local leaders to play in future resource development and control decisions tended to express a more positive view of their community's role in future northwest industrial and economic development.

Lax Kw'alaams respondents placed a similar level of emphasis on the global economy, natural resource policies, and availability of resources and tended to rate these drivers of change in a similar manner that tended towards optimistic expectations (see 4.2). However, Lax Kw'alaams respondents did not articulate a clear sense of their community's identity in regard to its role in the future of the region. Instead, they emphasized the role that their local leaders will play in navigating the changes associated with a shifting global economy and new resource development. Respondents also acknowledged that the high level of resource consumption within the community emphasizes self-sufficiency over reliance upon external markets, and the future of Lax Kw'alaams may not be as closely tied as other communities are to changes in resource policy and resource trade.

> *"It [the future of Lax Kw' alaams] is gonna be…determined on the action of our Councilors…the environment we can't control, nor can we control what…comes in next years's salmon run or what's gonna happen in the forest next year. But we can control our own future by planning it. They have to plan it." (Lax Kw'alaams respondent)*

"[The future of Lax Kw' alaams] is here… If the economy was to collapse today, it will not affect us… Because we're not bound by that mighty dollar. We're in a low-income community, and if you were to take the money from us, we would still survive. Our dad's dads never had money. They relied on our resources…the economy today , if that dollar were to collapse… it would not affect me. Because we still can live off the land." (Lax Kw'alaams respondent)

The isolated nature of Lax Kw'alaams was reflected in the additional emphasis placed on transportation as an influential and positive sources of change on the community. With access limited to boat and plane transportation, Lax Kw'alaams respondents expressed favourable views of increased connectivity with other communities, but placed less emphasis on the prospect of increased population playing a strong role in the future of the community. Further loss of population was viewed negatively in all communities. Respondents noted that past decreases in population had compromised the industrial and economic capacity of the region through reduction of the skilled workforce. Future concerns, on the other hand, revolved around loss of youth and there was a widely shared belief that the communities must work to both improve the occupational opportunities for the next generation of workers, and to protect the local environmental and community resources that make the area a desirable place to live and raise a family.

Climate change was ranked as the sixth most influential driver of change in the region, and was generally perceived as a negative source of change. A small portion of respondents (23%) reported the belief that climate change would have a positive overall impact on the region, with hope of increased timber and agricultural yields.

"The climate change could have a positive effect. It's been suggested that in temperate rainforests, in cool temperate rainforests, climate change or global warming or a warming trend could actually enhance forest productivity. We have-- you know most of our forests are limited by growing degree days, by growing season, and a one or two degree change in average temperature would actually expand the growing season fairly dramatically and result in a significant increase in the productivity in our forests. So there could actually be a benefit in a lot of the forests here that are currently limited by growing season."

"I think that that probably, with warmer temperatures and stuff like that, we are a northern climate, it might be easier to grow food here, you know."

However, the majority perceived climate change as a slightly to strongly negative influence (54%) or as neither negative nor positive (23%). Concerns about climate change as a negative driver in the future of the region were most pronounced among Lax Kw'alaams respondents, who ranked it more highly (as the fourth most important driver of future change) and rated it more negatively than the other communities. Concerns about potential impacts on local food supplies were central to Lax Kw'alaams respondents' views of climate change as a negative driver of change. Terrace and Prince Rupert residents also expressed concern about climate change as a negative impact on natural resource, but placed more emphasis on potential impacts to the resource economy or the transportation and infrastructure of the communities.

> "*Yeah, I think that we see, in Prince Rupert, the effects of climate change on-- it's easy to see the impacts of climate change. Foolish to say that you didn't see them. So, I mean, I think that there are huge impacts of climate change already that we're seeing in Prince Rupert."(Prince Rupert respondent)*

> *"[You see it (i.e. evidence of climate change) on] TV, then you read up on it and then you see it yourself, for wherever you travel or wherever you go or whatever you do. Like, we see the changes up the Nass River when we were up there in the early spring for oolichan. We see the changes, what is happening up there." (Lax Kw'alaams respondent)*

> *"I think everybody should be concerned about what climate change-- what effect climate change will have on the salmon because salmon are very temperature sensitive, especially for spawning." (Terrace respondent)*

In addition to direct climate change impacts, respondents expressed concerns about indirect impacts that climate change may have through the development of new energy or global trading policies based on climate change mitigation. This set of concerns was particularly strong among Prince Rupert and Terrace respondents whose visions of the future were based more directly on the role of their communities as role players in the global resource economy. Concerns tended to revolve around potential consequences for Prince Rupert as a transportation hub, with many respondents raising questions about what changes in fuel prices may mean to the community given its proximity to Asian markets. Meanwhile, Terrace respondents perceived positive possibilities for their region if new wood-based fuels or carbon-credit based economies emerge, but expressed wariness to the impact that mitigation policies may portend for oil and gas exploration in the northwest.

"If only all the ideas that have been coming forth, people are presenting bioenergy, biocoal, there's talk of water power, swift power. If all-- these all came together, I think we would be very successful community."(Terrace respondent)

"I guess with global warming and peak oil…just sort of being in isolation and not being able to depend on maybe shipments of food or anything…I think it has to happen and eventually there'll be probably more carbon taxes and… how is that going to affect people in a rural community…?"(Prince Rupert respondent)

Despite the perception of climate change as a negative overall influence in the future of the region, and the general perception of declining environmental resources (discussed in Chapter 3), climate change was not ranked among the top three drivers of change overall. The limited role of climate change in visions of the future of the region was linked to several themes in local priorities, and affected by the way respondents form understandings of their environment. Respondents in all three communities expressed a wide variety of understandings and perceptions of climate change. While some respondents perceived climate change impacts as already occurring, some respondents cited lack of correspondence between personal observations and their understandings of climate change as evidence of the limited influence of climate change in their community. Others drew on geographically specific ideas about the location of their community that minimized the impact of climate change due to proximity to the ocean or other moderating influences. Meanwhile, a small segment of respondents contended that climate change is not occurring, and offered alternative ways of interpreting changes in the environment.

"We're not living up in the Arctic where-- we're seeing-- receding icepacks, not coming in, we're not seeing that sort of stuff. All we see are declines in the fish stocks, which are probably impacts in land on the-- in the spawning beds and that sort of stuff. But here, we still get rain 300 days a year. We don't see any climate change. We don't have great summers; we have horrendous weather. We're not getting warmer; we're moderate because we're beside the ocean. So we don't have spikes in our temperatures." (Prince Rupert respondent)

"And I think because we're on the cusp, if you go to Smithers they still have winters. If you go to Rupert, it still hardly ever sees snow, right. So we're in the middle between that, and I just noticed that we've come much-- we've become much more like Rupert and less like Smithers." (Terrace respondent)

> *"I have seen summers where there's no fish. I've seen summers where there's lots of fish. I've seen summers where's no berries,…and then a summer where there's lots of berries. I've seen some hunting seasons where there's no deer to hunt, and I've seen seasons where you have abundances. And nothing so far that I have seen here has told me that there's global warming happening in our country here….[it's] just the changes of seasons." (Lax Kw'alaams respondent)*

Although there were varying opinions about the extent of climate change as a driver of change in the future of the region, perceptions of decline in the condition of environmental resources were generally consistent across communities. Furthermore, approximately half of all respondents (51%) believe that climate change is directly or indirectly related to key issues in their community. Lack of clarity in understandings of future climate change impacts may be linked to the finding that only 41% of respondents believe that available climate change information is specific enough to apply to their local area.

A key theme among respondents in all communities, was that although climate change is generally viewed as a negative influence on the future of the region, there are other pressures and challenges that apply to their natural resources base that are perceived as either more influential or a higher priority for the community. Most respondents acknowledge climate change as an actual phenomenon that is occurring, but they do not see it as having immediate or significant impacts on the local region, relative to other forces of change. Pollution, over-harvesting, and mismanagement of natural resources were frequently mentioned as resource impacts that must be dealt with before the broader (and potentially more daunting) challenge of climate changes can be dealt with.

> *"When I was a child I saw so much fish out there that it's unbelievable. And so much wildlife out there that it was just unbelievable. Now the Department of Fisheries and Ocean has mismanaged a lot of these fish into extinction and oblivion and mix-up and chaos, it really is bothering me that our own people can mismanage such a beautiful resource that could feed the world." (Lax Kw'alaam respondent)*

This framing of climate change relative to other local concerns also exerted an influence on beliefs held about the ability of the communities to deal with future climate change impacts. Many respondents acknowledged that the challenges of climate change may be very important in the future, but that other priorities in the community demand more immediate responses.

> *"If you're in complete survival mode and every dollar you spend is trying to fill a pothole, how do you expect that they would have any ability to respond to an unknown shift in climate?…The answer is no, we have no money to do that." (Terrace respondent)*

> "*I think it's next to zero…when you're trying to struggle to put food on the table, the last thing you're concerned about is whether the ocean comes up another foot, you know, and that's kind of our concerns, right. Our concerns are job creation, so that the less fortunate people that are staying in the community, that are on E.I. or welfare or social assistance, can actually get jobs and have meaningful work every day so that they can create economy*." *(Prince Rupert respondent)*

Many respondents spoke more optimistically about the ability of their community to deal with climate change, and those that did often made reference to involvement in local environmental projects, or spoke of the ability of the community to pull together when needs are high. When asked what community leaders should do to ensure the best possible future for the community, 44% of respondents maintained a focus on the enrichment of economic opportunities in both the communities and the general region.

> *"I think it could be a better working place because people want more employment and we just don't have that long-term solution right now, and it … gets us kind of upset, wishing we could do more". (Lax Kw'alaams respondent)*

> "*I think they-- well, I think they should really try to actively pursue-- more actively pursue industry, the right kind of industry. And I think they-- the leaders of Prince Rupert should really try to encourage the small business growth in this community as well and open up the doors for that and try to get this town strong, almost from the inside out, you know*."

> *"I think if only we could get a reliable, dependable and secure natural resource industry, I guess I would say, that allows for Terrace to not only grow but to attract the right people to come here. And invest dollars and become a, you know-- the whole Northwest actually, not just Terrace."(Terrace respondent)*

This pro-development mindset was coupled with a similarly strong belief in the need to manage growth responsibly, and for future development to proceed in a manner that best protects the environmental resources that are highly valued in the region. Nearly one-fifth of respondents singled out natural resource management or environmental protection as the main task for community leaders. However, even those that focused on economic and industrial development expressed a clear desire for

environmental considerations to remain central to future resource management and development decisions.

> *"I'm going to have to base it on the economy. I cannot lie about the economy. We're living in our world, but we have-- the economy affects every individual, whether big or small town. But I believe we can make a difference within our own community. And we-- like I said, I started from the beginning, we do have rich resources here…We have the water. We have the fish that's barely hanging on. We have the beauty of the land that we can sell. We have our culture. It's been here for years." (Lax Kw'alaams respondent)*

> "*Promote the community the best way they can for all kinds of industry: light, small business, light industrial and heavy industrial. And at the same time be sure that we're getting industries that are compliant to the environmental regulations. You don't want big plants with big smokestacks blowing out black smoke, you know. We want to keep our environment clean and free of pollutants in the air. I mean, nobody wants to live in Vancouver up here." (Prince Rupert respondent)*

> *"I think if only we could get a reliable, dependable and secure natural resource industry, I guess I would say, that allows for Terrace to not only grow but to attract the right people to come here. And invest dollars and become a, you know-- the whole Northwest actually, not just Terrace."(Terrace respondent)*

Other prescriptions for action included focusing on social development, improving education, and strengthening relationships with provincial and federal agencies. Asserting the rights and concerns of the community was a prominent theme in all three communities, and there was an acknowledgment that increased cooperation between communities could assist the region in protecting its interests and securing greater control over the use of its valuable resource base. Throughout all three communities, there was a distinct belief that northwest communities need to define both individual community and broader regional identities in order to establish clear directions for development that will return prosperity to the region.

> *"Well, I think the first thing that needs to happen is to define a clear path forward, a clear vision, articulate the clear vision forward. Something that encompasses values that we all share. I think once we have a clear vision of what we want our future to look like then we can start making decisions about how to get there."(Terrace respondent)*

> *"Coastal communities work together. And in some ways there-- certainly work together on larger environmental issues with-- down the Skeena." (Prince Rupert respondent)*

> *"I think for our people to work with other people, they got to come together. They got to come to understanding [sic] … that this isn't for them, this is for everybody… This is for the future of other people. I think if they all come together, they could do it. " (Lax Kw'alaams respondent)*

4.2 Assessing Adaptive Capacity from a Sociological Perspective: Next Steps for Research and Analysis

There is a close link between the influence of internal and external 'drivers' on a community, and that community's capacity to adapt; however, developing an understanding of the capacity to adapt requires a level of analysis that has not yet been completed, but is worthy of discussion in order to explain why the above information is important and how it can be used in the future.

The sociological findings provided in Chapter 3 on Valued Resources highlighted the resources most valued by leaders in Terrace, Lax Kw 'alaams, and Prince Rupert. The previous section has included a discussion of dominant community issues, and an examination of what local residents identify as their communities' 'drivers of change' and 'visions of the future.' This descriptive analysis provides comprehensive social research findings about the way in which residents of three resource communities in northwest B.C. understand their way of life, value their environment, and face their future. However, this simple analysis of the data risks treating these communities as if they operated independently from the larger context of world and Canadian socio-economic processes in which they are most surely embedded. In addition to questions on community values and drivers of change, the research interviews included a number of questions aimed at better understanding the adaptive capacity of communities. Future work will build on the information provided in this report to further explore the adaptive capacity of these communities through comprehensive analysis and coding of interviews and the application of New Institutional Analysis. This section expands on the concept of adaptive capacity from a sociological perspective, and sets the stage for additional analysis of the research data.

The term 'adaptive capacity' was introduced briefly in the first chapter, and is an appropriate label for the assessment of how local communities are equipped to deal with the challenges of the future. To provide something of a framework for understanding adaptive capacity from a sociological perspective, it is useful to compare 'adaptive capacity' with the more widely used term 'resilience'. A resilient community is one that is able to survive the challenges that it faces. In contrast, a community with 'adaptive capacity' does not just survive challenges, but is positioned to benefit and grow by taking advantage of change. Although discussion about climate change was once focused largely on the

physical environment, there is growing awareness that climate change is socially constructed; that it is as much a social condition as it is an ecological and bio-physical one. For example, the emissions scenarios constructed by the IPCC (see Chapter 6.1) consider the implication of different political, economic, technological, and demographic trends on greenhouse gas (GhG) emissions and climate change (Nakicenovic, et al, 2007). Climate change is a consequence of human behaviour (IPCC, 2007) and has repercussions for individuals, communities and societies. Thus, mitigation and adaptation to climate change require extensive change in human behaviour, culture, and social organization.

"Adaptive Capacity is the ability of a system to adjust to climate change… to moderate potential damages, to take advantage of opportunities, or to cope with the consequences" (IPCC – Fourth Assessment Review: 2007: 869). As noted in the introductory chapter, from a sociological perspective adaptive capacity is largely dependent on the organizational flexibility of communities and the institutional culture found in them. In addition, it rests on the quality and strength of leadership, the depth of knowledge, and the level of social capital that local communities possess. The next level of analysis that will be taken by the sociological research team includes examining the dominant social, economic, cultural, political and legal forces external to these communities that have helped shape their current situation and visions of the future.

Future work will consider adaptive capacity at both the macro and micro levels. The macro level focuses on the broader international and national context that shapes northwest Skeena communities; 'shaping' forces such as globalization, neo-liberalism and aboriginal rights, are examples of dominant forces shaping the potential and the future of the Skeena region. The micro level of analysis focuses on how to interpret our findings in the context of the 'capacity' of local communities to respond effectively to the macro forces like climate change that influence them presently and may determine their future. Though community leaders may not explicitly frame their responses in the same terms, the data that we have presented suggest local residents have an implicit understanding of what these external factors mean to the future of their communities.

4.2.1 Macro-level adaptive capacity

Understanding macro-level adaptive capacity demands examination of the broader social, economic, cultural, political and even legal context in which these communities are embedded, and that impact the region. Changes associated with these processes are occurring in the Skeena region, just as they are in other resource communities throughout BC and Canada. Rural communities and regional centres throughout British Columbia are experiencing major social upheavals that are changing their

capacity to adapt. These complex social processes can be generally summarized as involving: (1) globalization; (2) neo-liberalism; (3) aboriginal rights; and, (4) environmental awareness. The following discussion is based on recent changes to current socio-economic systems and it is acknowledged that these issues are far more complex and have much deeper historical roots than the discussion below. As such, it is not meant to serve as a comprehensive or conclusive analysis of each of these issues, but rather, to introduce some of the ways in which they interact in the Skeena in order to set the stage for future analysis.

Globalization is used here to refer to a worldwide transformation of economic and associated political forces in the economy, and the social and political system that surrounds it. Some twenty to thirty years ago, most of the non-urban industrial regions of Canada were referred to by social scientists as 'hinterlands' (cf. Matthews, 1983). From that perspective, the process of resource exploitation in Canada consisted essentially of a network of 'hinterland-metropolis relations' in which the urban economic centres were drawing from hinterland regions the resources, the labour, and even the capital that made urban centres prosperous.

Whatever was the validity of the hinterland-metropolis perspective as a description of the dominant economic forces of the time, it is generally not the case today. New economic forces (and associated social and political processes) are at work. While former hinterland areas may still seem to be in a position of dependency similar to its previous hinterland state, they have primarily lost direct economic relationship with specific metropolises. Rather, areas such as the Skeena are now largely dependent on the currents of a 'global' economy. That is, except for specific firms that might set up in the region to harvest its resources, areas such as northwest Skeena are now adrift in a larger global context in which it, as a region, must largely compete on its own against all areas of the globe that have similar natural resources. The ties of hinterland dependency may be gone, but (for the most part) they have **not** been replaced by *other* structures that hold local communities in a network of dependant economic relationships. As a result, without creative adaptive efforts at a local level, resource based communities are even less protected than they were under the hinterland-metropolis system.

The process of globalization has been enhanced by a political-economy approach generally referred to as ***neo-liberalism***. Neo-liberalism has little to do with any existing political party, though it is subscribed to by some. While definitions vary, neo-liberalism may be thought of as an approach to economic development that provides considerable freedom to industry to engage in strategies that maximize their access to global and national markets, while reducing and eliminating public policies that

would hinder that process of global access. The implications of this strategy for forestry communities in British Columbia have been described in some detail elsewhere (cf. Young and Matthews, 2007). It has led to the abolition of policies that would require forest industries to process their harvest in local regions, as well as policies that require a significant level of local employment (i.e., appurtenance requirements). Industry has presumably benefitted from the flexibility that these changes have brought. However, one possible consequence has been the weakening of links between forest companies and local community-based economies (Young and Matthews, 2007). Combined with globalization, the consequence is a loosening of the pattern of economic ties that were commonly a large part of the reason for the development of these communities in the first place. Many remote communities in western Canada owe their existence to previous policies (particularly in the forestry sector) that required local engagement and employment in the region. With many such policies now eliminated, regional communities like Terrace and Prince Rupert are required to find other sources on which to sustain their populations into the future. This is reflected in the responses of community leaders examined earlier as they ponder the future of their communities, and consider the different levels of local engagement and influence that are available when defining future economic and industry initiatives.

The third significant macro socio-economic and political change that has affected communities in the northwest Skeena has been ***the transformation of aboriginal rights and titl*e** over recent decades. While only the Nisga'a in northwest British Columbia have signed a formal treaty, court decisions have given First Nations clear grounds on which to affirm their rights and title to forest resources, even though these may be contested by other First Nations. The implications of this is that many First Nation residents have developed more confidence in their ability to benefit economically from forest resources, while the opposite may be the case for non-First Nation communities.

The processes of globalization noted earlier, neo-liberal policy development, and the affirmation of aboriginal rights and title have combined to change the structure of economic development in the northwest Skeena region. The decline of hinterland dependency and the rise of globalization generally tend to leave local communities cut-off from their traditional economic relations. However, it may also offer the possibility for local communities to take control of their own economic development. This has, to some significant degree, happened in the Skeena region where the Lax Kw' alaams Nation has developed and expanded their own forest harvesting company, Coast Tsimshian Resources (CTR) which has been actively acquiring timber licences while developing markets for its timber in Asia (Matthews and Young, 2005).

Expressed somewhat differently, globalization may cut Skeena communities off from their traditional networks of dependency on centres such as Vancouver or Seattle. On the other hand, the very lack of such ties also has the potential of liberating them to seek global markets on their own behalf. A cynic might argue that the ties of dependency are still in place. However, a more positive interpretation is that Lax Kw' alaams (and communities like it) are now in the position to develop their own relationships with forest (and other) markets. The old ties of dependency are a relic that gave way to new ties of their choosing and the benefits accrue largely to the community and its corporate entity CTR. With the future possibility of market and product diversification, Lax Kw' alaams is positioned to take control of its own economic future (Matthews and Young, 2005). This transformation has begun to significantly alter the structure of opportunities for the other forest resource communities in the Skeena region. In all three of the participating communities, the responses of local leaders to questions about the future of their community and the uncertainty they express can be seen as a reflection of the responses to the changes just described.

The fourth significant change in northwest B.C. has to do with ***the structure of environmental awareness and environmental management.*** Here, it is important to highlight the changing stance of many environmental non-governmental organizations (ENGOs) in British Columbia. To be sure, there remains ENGO activist opposition in the region and elsewhere in the province; however, there is also a more focused and proactive involvement of ENGOs in the environmental planning of the northwest and other areas. This process became most fully developed on the central coast of British Columbia through the protection of the Great Bear Rainforest (Page, 2010). A similar process is occurring in the northwest where environmental groups are now active participants with both First Nation and settler communities and taking an active role in the environmental planning of the region. Increasingly, these groups are often also working in cooperation with both provincial and federal governments. Furthermore, they frequently bring their own expertise and considerable funding to the table and, through this, significantly shape the direction of environmental planning in ways that reflect a greater focus on the maintenance of key ecological habitats and more sustainable processes for harvesting environmental resources. Indeed, they can be seen as filling some of the gap left by the withdrawal of government services under neo-liberalism, while also playing a pivotal new role in integrating aboriginal and settler communities with government and university representatives, when designing environmental strategies of resource development. Though many of the community leaders we interviewed may not have identified environmental change issues as dominant concerns, the changing involvement of environmental groups working with these communities and their leaders likely means that these issues

will constitute an increasingly significant focus in future planning within the northwest Skeena region. Indeed, since the interviews were completed, the magnitude of the debate and local opposition to the planned Enbridge pipeline has brought a number of environmental issues to the forefront again. The debate around the pipeline is a prime example of the complex interaction of globalization, neo-liberalism, aboriginal rights and title, and environmental awareness and, no matter the outcome, will set a precedent for the way things are done in the future.

4.2.2 Micro-level Adaptive Capacity

The preceding discussion focused on the large scale social, economic and political processes occurring largely beyond the level of the northwest Skeena region; forces that have significant influence on the way the region is changing and on the local communities there. In contrast, the phrase 'micro-level adaptive capacity' refers to the social processes that are taking place within local Skeena communities and that also shape their future direction. In particular, the focus here is on the extent to which local communities reshape and reorganize themselves in the face of the social, economic and ecological changes that they are experiencing – and whether this prepares and empowers them to face the future. At the social level, the focus of adaptive capacity is on determining whether the community has the 'social resources' to enable it to overcome its exposure to challenges and thereby leave it less vulnerable. There is a growing body of literature that seeks to link ecological and social systems in this manner. The most widely cited is Gunderson's and Holling's *Panarchy* (2002) in which they state,

> "Panarchy… must be capable of organizing our understanding of economic, ecological, and institutional systems… in situations where all three interact".

In much of the socio-ecological literature, institutions are given the responsibility of carrying out much of the 'heavy lifting' with respect to social responses to ecological change. Even as respected a source as the Brundtland Report , *Our Common Future* (1987), declares, "The real world of interlocked economic and ecological systems will not change: the policies and institutions concerned must".

Almost universally throughout the literature linking the social and the ecological, institutions are seen as the critical 'social element' affecting the adaptive capacity of social systems – particularly with regard to climate change. To cite one more example, Agarwal (2008:1) states, "Institutions influence adaptation to climate change in three critical ways: 1) they structure impacts and vulnerability; 2) they shape outcomes; and, 3) they are the means of delivery of resources to facilitative adaptation". What is of particular significance in this statement is that it links adaptive capacity and institutions. It

establishes, at least rhetorically, that the adaptive capacity of communities can be assessed in terms of their institutional capacity to manage major change.

But just what are institutions? Within the social sciences, institutions are generally (though not universally) regarded as belonging to the realm of culture. Put somewhat colloquially, they are the 'cultural habits of organizations'. They may be thought of as the social equivalent of what habits are to individuals, or 'the way things are done around here'. More formally, institutions are the patterned ways in which things are normally done within organizations. Thus, if one is seeking to assess the adaptive capacity of northwest Skeena communities, it is useful to observe the institutional cultures of local communities, focusing on whether these are changing in a manner that effectively meets new environmental, social, political and economic challenges. But how does one go about doing that?

Traditionally, a focus on institutions involved a focus on the normative. Institutions were seen as essentially the social glue that held societies together. In the words of O'Riordan and Jordan (1999:2), "Institutions are the means for holding society together, for giving it a sense of purpose, and for enabling it to adapt". Rapid social and economic change was seen as potentially contributing to a breakdown of the cultural norms that formed the basis of community or society. In this context, values become critically important. Values are a fundamental part of culture; if value changes were occurring rapidly, then there was the potential for a society to lose its moorings and be unable to adapt. As a result, institutional analysis tended to focus on the stability of culture and traditional ways of doing things, rather than examining the actual responses of people, and the active social processes that were occurring in response to changes.

In recent years, an alternative approach is being developed in consideration of how individuals make choices either within, or outside, the constraints put on them by the normative values of the community or the expectations of their positions in various community organizations. This approach is known as "New Institutional Analysis" (NIA). In the words of Hall and Taylor (1996:6) who are leading exponents of this perspective, the focus of NIA is "on the calculus of actors rather than constraints of culture". Put slightly differently, the focus is on the 'actor', not just the norms or the organizational structure per se. As Nee (1998: 6) puts it, new institutionalism "seeks to explain institutions rather than simply to assume their existence". Research from a NIA perspective, focuses on the manner in which individuals (i.e. actors), operating within the existing social organizations within any community, engage in strategic activities in the face of the new situations facing them. The emphasis is on investigating whether they have the flexibility within their roles to seek ways of dealing with the new situations. This approach has been discussed in detail in other publications (Matthews and Sydneysmith, 2010a; 2010b.)

and so it is not necessary to reiterate in detail here, aside from suggesting that in the context of understanding the adaptive capacity of northwest Skeena communities, it is important to examine the ability of those in resource management, community leadership, and various administrative agencies, to respond flexibly to new macro conditions facing them, such as climate change.

Paralleling the development of the NIA perspective, is another analytic framework evolving which focuses particularly on institutional processes. It, too, takes as its central concern, the adaptive capacity of communities. However, as an analytical tool, its advantage is the development of a well-articulated set of dimensions with which to examine the adaptive capacity of communities. This approach was begun by the International Human Dimensions Program (IHDP) of the United Nations, the sister organization to the IPPC, which has been focusing on social dimensions of environmental change. However, it has been developed in its fullest form by Young et al., (2008), who examine institutional processes of any community in terms of three analytic dimensions, fit, interplay, and scale. Somewhat oversimplified, these may be summarized as follows:

- Fit – whether local institutions and organizations are congruent with ecological needs.
- Interplay – the extent to which different institutional and organizational levels interact, both horizontally and vertically.
- Scale – the geographic and temporal range of institutions.

That is, using indicators for each of these dimensions, a community, a region, or a state may be assessed to determine whether it has the 'adaptive capacity' in its institutional and organizational processes to deal with the changes and challenges facing it. Note that the focus, as with the NIA perspective, is on *processes* not structures and on agency and individual leadership in particular. Young et al., also emphasize that "diagnostic queries" about "the four Ps", problems, politics, players, and practices are particularly useful (2008: 121-144) when assessing the adaptive capacity (i.e. fit, interplay and scope) of communities and regions.

Of course, there are other dimensions of critical relevance to the capacity of communities. One of these of critical importance is knowledge. Namely, do the key players have the necessary skills and knowledge that allows them to capably understand their situation and respond adequately to it? Indeed, Young et al., place particular importance on the role of "knowledge brokers" (2008: 8) and on the "mobilization of different knowledge systems" as having the potential to open up space for new social interactions and new combinations of knowledge and experience (2008: 163). Their description reflects the reality of the northwest Skeena, where scientific knowledge, indigenous / traditional knowledge, local experience, and even social science knowledge, interact in complex but potentially

helpful ways to develop community and regional adaptive strategies that respond to ecological, economic, political and social changes affecting the region.

Finally, there is a need to emphasize the importance of networks and linkages, as well as levels of trust and trustworthiness that, together, combine to make up the social capital of any community. As has been demonstrated by a number of researchers, the importance of networks of social contacts and levels of trust in a community are critical elements of its adaptive capacity (cf. Matthews, 2003; Matthews, Pendakur and Young, 2007; Page, Enns, Malinik and Matthews, 2007; Enns, Malinik and Matthews, 2008). Such relationships reduce transaction costs, provide access to new knowledge, create markets, and enable favourable outcomes. They are essential and necessary ingredients of social transaction without which adaptive capacity would be unlikely.

4.2.3 Exploring Adaptive Capacity through the Interview Process

In addition to the use of the sustainability matrix to determine valued resources and future drivers of change, the interviews posed a number of questions related to all of the aspects of adaptive capacity outlined above (see Appendix 3.3). These included questions on divisions in the community; the capacity and flexibility of the respondents workplace particularly with respect to climate change; and the extent to which groups in the community are able to cooperate to bring about effective action around environmental and other issues facing the community. Such questions were designed to probe the core aspects of community adaptive capacity, and reveal:

- Whether local organizations were strong or weak, flexible or rigid, in their ability to deal with the issues facing the community. (Q41)

- The extent of rules or procedures (informal or formal) that inhibit the ability of local community organization's to deal with critical community issues and changing ecological conditions, as well as social, economic and political ones. (Q42)

- The flexibility of respondents' workplaces and of local government to deal with issues of change and development not previously encountered, including adapting to environmental challenges brought about by climate change. (Q43)

- The capacity of local leaders and resource managers to collaborate with and trust individuals and groups both inside and outside the community. This is related particularly to the manner in which they deal with new issues and processes, environmental and otherwise. (Q45)

In addition, a number of questions were asked about the level of knowledge of respondents with regard to environmental issues and natural resources. By conducting the interviews researchers obtained considerable information about where respondents seek information, what information they regard as trustworthy, how they evaluate scientific knowledge and various forms of scientific modelling, and the extent to which there are definite 'knowledge brokers' when it comes to environmental issues as well as broad social, economic and political processes affecting the community. An immense amount of data was collected, and some of the data obtained from the responses to these and other questions have yet to be coded. In the coming months, they will form the basis of several analytic papers examining, in both empirical and conceptual detail, the way in which northwest Skeena community leaders and local organizations face the environmental and social challenges before them. When completed, the papers will have the potential to provide further insights into the dynamics of community adaptive capacity and the differing strategies of these BC communities, including their capacity of adapting in a manner that is consistent with the values fundamental to their community well-being.

The community workshops held in December (Chapter 2) were intended to build adaptive capacity by sharing with participants, new knowledge about climate change, and by bringing people together to discuss options, barriers, and next steps toward a sustainable and future. In addition, the feedback from participants served to build knowledge among the researchers, placing each in a better position to understand the issues facing the community, and the way in which future work should be structured to facilitate adaptation and provide maximum benefit to the community. The experience of the interviews, combined with the vast amount of additional data not yet fully analyzed, puts researchers in a strong position to contribute to the adaptive capacity literature, and more importantly, to establish benchmarks for assessing the level of adaptive capacity achieved over time as communities and leaders confront new challenges and opportunities.

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