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Author: Keith Storey

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From ‘new town’ to ‘no town’ to ‘source’, ‘host’ and ‘hub’ communities: The evolution of the resource community in an era of increased labour mobility.

Keith Storey

Department of Geography

Memorial University

St. John’s, Newfoundland and Labrador, Canada

kstorey@mun.ca

Abstract

Resources are not ubiquitous and as new sources are developed labour must be made available at the resource sites. Construction of purpose-built resource towns has, until recently, been the usual solution to this problem. While resource towns continue to exist, changes in economic, political, environmental, social and technological factors have influenced the preferences of governments, companies and the resource-related labour force itself regarding the type of settlement option adopted. New resource towns are no longer being built and commute operations and camp accommodations have become the preferred alternative. This has resulted in a much broader spectrum of resource community types, a significantly different geography of resource-dependent communities and a wider and more complex set of development issues that need to be addressed. This paper uses examples from Canada and Australia to outline the evolution of a number of new resource-related community types that have emerged in the past forty years associated with the mining sector and considers some of their key community and regional development implications.

Keywords: commute work; resource-dependent communities; source, host and hub communities

1.0 Introduction

Traditional, purpose-built, mineral-based single industry, resource communities still exist, but they are relics of an earlier form of production that is no longer being replicated. Since the 1970s a variety of factors, including new town construction and operations costs, restructuring in the minerals sector, changes in regulatory and political environments, labour supply, mobility and place preferences have all contributed to a shift in practice from the accommodation of workers and their families in ‘permanent’ resource-based communities to the temporary accommodation of workers only in camp-style facilities (Storey, 2009).

These new work arrangements have given rise to a new geography of resource development, particularly in Australia and Canada. These arrangements are characterized by highly mobile workforces and have resulted a new range of place effects, which, added to the ongoing impacts of traditional single industry communities, make for a much more complex resource development landscape and a broader set of community and regional development issues than once was the case. Their implications are only now starting to receive the attention they deserve.

The objective of this paper is to illustrate the elements of this new landscape and some of the key community and regional development implications that have emerged. Methodologically, the arguments made are developed from a review and analysis of secondary data which are used to build a composite picture of this ongoing process. As Barnes (2005) and O'Hagan and Cecil (2007) noted more than a decade ago, contemporary geographers for the most part have shown relatively little interest in resource economies and resource-based communities in recent years. By offering an overview of changes, many of which have come to the fore in the past decade, this paper may prompt further analysis into the implications of activities in an industrial sector which seems likely to continue to be fundamental to both the Canadian and Australian economies.

2.0 From 'New Town' to 'No-Town'

The standard approach to resource development in new locations until the 1970s was to build a new town. The town would house workers and their families, associated resource industry support activities, retailers, community service providers and other institutions and organizations necessary for the functioning of both the resource operation and the town. While these 'new towns' have evolved in terms of their planning, design, management, quality of life characteristics and other considerations, the feature that remains common to all is the dependence on a single resource—and often a single main employer—and, as a consequence, a vulnerability to the boom and bust effects associated with dependence on external markets and commodity prices. The costs and benefits of single industry resource-based communities (SICs) have been well documented (see, for example, Bradbury & St. Martin, 1983; Bray & Thompson, 1996; Brealey & Newton, 1981; Hayter, 2000; Leadbeater, 2008; Randall & Ironside, 1996; Robinson, 1984; Robinson & Newton, 1988; Robson, 1988). Besides their vulnerability to external market conditions SICs are typically characterised by (a) a lack of economic diversity and alternative employment opportunities, (b) difficulties of attracting and retaining skilled labour, (c) socio-demographic imbalances, (d) social problems associated with remoteness such as lack of services, and (e) difficulties of managing downturn and closure. In response a number of writers have attempted to identify alternative settlement options that would avoid or minimize these disadvantages and yet maintain any advantages that life in such communities offers.

Among the early studies of this issue was V. J. Parker's *The Planned Non-permanent Community* (1963) in which he argued that the permanent single enterprise community was not a rational approach. Regional centres or multi-enterprise communities were preferred options, but where these were not feasible the alternative was seen as the non-permanent community. Here Parker envisaged a non-permanent settlement that possessed permanent urban features, but also those of physical mobility and flexibility—the ability to relocate the community and to expand or contract it as needed.

The model suggested by Parker was based on the mobile home trailer park, variations on which had been used to house migrant workers and their families involved in the construction of dams, highways, pipelines, and the development of mineral, oil and energy project sites in the United States in the 1940s and 1950s. The Tennessee Valley Authority, for example, had used 'sectional housing' to accommodate dam site construction workers in temporary villages in the 1940s, and in 1951 as many as 10,000 trailers were moved in to provide housing for construction

and defence workers involved in construction of several large US government Atomic Energy Commission projects (Parker, 1963; Tennessee Valley Authority, 1943).

The perceived advantages of this approach included: (a) speedy housing provision—while at the same time reducing high rents and local ‘boom’ effects, (b) reduced taxpayer spending on shoddy temporary dwellings—while avoiding squalid living conditions, (c) a boost to worker morale—families could remain with the workers and associated reductions in absenteeism and turnover were claimed, and (d) the appearance of a ghost-town once the work was completed was avoided (Mobile Home Manufacturers Association, 1951). What Parker did not anticipate was that mining and other resource companies, in their search to reduce costs, would adopt measures that would maximize mobility and flexibility, but at the same time would minimize many of the ‘urban’ features that his vision sought to maintain.

3.0 The New Resource Community Landscape—Commuting and Work Camps

A range of different types of accommodation for workers are required at different stages of projects, including temporary and mobile exploration camps, temporary construction camps, and facilities for more permanent operations personnel. Parker’s focus was primarily on provision of accommodations during the construction phase. He had imagined that workers—and their families—would live in their trailers, go to work at the site on a daily basis and reside in the construction village until the job was completed, after which both the camp and the workers and their families would move on to the next project. There was no discussion of what kind of settlements might be required during other phases of the project.

Parker’s perspective was a community planning one. He did not anticipate the economic situation that would influence corporate or political decisions in the decades after he was writing. By the early 1980s the ‘long boom’ in commodities that followed World War II had ended and high real interest rates, declining global GDP, world currency realignments and the emergence of new low-cost operations in developing countries encouraged mining and other resource companies to focus on productivity improvements, cost reduction and rationalization of their operations. At the same time the search for new mineral reserves was taking the industry to more remote locations, market conditions were encouraging projects of higher value and consequently often shorter mine life, and the need for efficiency was reflected in the desire for smaller workforces. Production flexibility was also of growing importance. 1980, for example, saw a dramatic increase in the price of gold, encouraging a wave of investment and consideration of ways to be able to respond quickly to opportunities and changing market conditions (Storey, 2010a). All of these conditions were consistent with thinking about the use of non-permanent communities as more rational and cost-effective settlement options, but in more radical forms than Parker had imagined.

Government attitudes towards mine town development had also changed. In both Canada and Australia, the 1970s and 1980s saw increased public concern regarding environmental protection and assessment issues, and pressures from aboriginal groups over land claims. In addition, in Canada the costs associated with mine town closures were of growing concern, while in Australia companies had lost tax exemptions that previously encouraged them to build communities, while the Fringe Benefits Tax introduced in 1986 led to considerable incentives for employers with

Fly-in/Fly-out (FIFO)-style employees (Western Australia Regional Cities Alliance, 2011). For these and other reasons the 1980s saw the last of the purpose-built mine towns to be constructed in both Canada (Tumbler Ridge, BC) and Australia (Roxby Downs, SA).

Instead, resource companies found the alternative to the ‘new town’ in the type of non-permanent community that had developed to meet the needs of the offshore oil industry. In the onshore context the result was the development of the ‘no-town’—non-permanent camp-like communities—at resource sites designed to accommodate workers (but not their families) who operated on a rotational work cycle or roster, travelling between their work place and their places of permanent residence between cycles. The commute–camp system has since become the preferred alternative for resource projects at new locations and increasingly also for new projects near existing communities.

While traditional SICs were designed to meet the basic accommodation and service needs of the resource worker and their families, work camps only meet some of those needs and, given the travel requirements of rostered work arrangements, there are other needs that must be met. These roles and functions are now being taken up by existing communities rather than new towns designed specifically for the purpose. Resource projects that depend on commute operations are supported by other places which function, for example, as the permanent place of residence of workers (source or sending communities), as distribution centres which act as focal points for workers in their journeys to and from the workplace (hubs), and as destination points (host communities) where, if accessible to workers before, during or after their work period, workers may stay or take advantage of services not available in their camps.

These new work arrangements would not have been possible without the increased mobility of the labour force made possible by cheaper and safer air travel in particular. Commute work has been both a cause and a consequence of changes in organization of production in the resource sector over the past forty years. Increased mobility has helped to change the geography of production and resulted in resource-based communities becoming much less easily definable and more complex entities than once was the case, and which is only now starting to be more closely examined (e.g., Haslam McKenzie, 2016). The examples that follow are intended to illustrate these new entities and to provide a basis for consideration of their implications from a community development perspective.

4.0 Source, Hub and Host Communities

The first onshore commute work arrangements were used in remote locations where construction of a ‘permanent’ community was both difficult and had little prospect of continuing beyond the lifespan of the mine which had generated it. Commute operations, like other resource operations, are still subject to the resource cycle, but a perceived benefit was that there was no ‘community’ at the resource location to be affected by downturn or closure and, because workers were drawn from a wide variety of locations, the effects of job losses were not spatially concentrated. Similarly, the benefits of a resource ‘boom situation’ would be dispersed and problems associated with, for example, increased local housing prices, avoided (see, for example, Robinson & Newton, 1988; Rolfe, Lawrence, Gregg, Morrish, & Ivanova, 2010; Rolfe, Gregg, Ivanova, Lawrence, & Rynne, 2011). Many of those commuting to remote sites lived in larger urban centres, giving rise to the phenomenon of the ‘urban miner’ (Shrimpton & Storey, 1989) and their wages

and expenditures were absorbed in their local economies without causing the distortions common to traditional SICs.

The use of commute arrangements has since evolved and is no longer used only in remote situations. Demand for workers during the most recent commodity boom, worker preferences for commuting rather than relocation, and difficulties of accessing sufficient accommodation have seen camp–commute arrangements adopted for projects both near and in existing communities. ‘Host’ communities have thus developed which have both a residential and a temporary–transitory population engaged in the resource activity.

The same demand issues have also changed the ways in which workers are sourced for projects and the spatial impacts of labour provision. Rather than workers being relatively few in number and geographically dispersed, as was originally the case, specific locations have emerged as source communities and points of concentration of commute workers. In addition, some communities have established themselves as hubs that facilitate the movement of workers from source points to host communities or directly to the resource sites. However, even within these categories there may be significant variations in community types as the following examples illustrate.

5.0 Source Communities

Four general types of source community can be identified:

5.1 Natural Source Communities

‘Natural’ source communities develop as commute work supply points either because workers and their families choose to relocate and live there, or because those that already live there see opportunity and benefit from involvement in commute work. In a sense any place where commute workers choose to live is a ‘natural’ source community, but some are more important than others. Perth in Western Australia is probably the most significant of these in terms of the number of commute workers living there.

Greater Perth has grown significantly in the past 10 years from 1.58 million in 2006 to 2.02 million in 2016 (Australian Bureau of Statistics, 2016) and is Australia’s largest ‘mining town’ when defined by the number of its usual residents working in the mining industry. In 2016 there were 177,649 workers in Australia’s mining sector of which approximately 26% lived in the Greater Perth area, up from 24% in 2006. While many work within the Greater Perth region itself—mining represented 5% of the total number employed in 2016 (.idcommunity, 2016a)—others commute to mining areas elsewhere in Western Australia and to other parts of the country.

Other source communities are also to be found in southwest Western Australia. Hoath and Haslam Mckenzie (2013) and Mckenzie et al. (2014) document the growth of Busselton in the South West Region and Mandurah in the Peel Region, both south of the Perth Metropolitan Area. Both Busselton and Mandurah represent places where accommodations are relatively affordable, and lifestyle, amenity and aesthetic values are high compared with other areas. Many of those living there are drive-in/drive-out (DIDO) commuters working in gold mining and bauxite operations in the nearby Shire of Boddington, others FIFO to the Pilbara or Kalgoorlie–Boulder regions, and significant numbers of others work in allied businesses, such as trucking, which support mining and mine-related construction.

Similarly, Cairns in northern Queensland has emerged as a ‘natural’ hub. As the major source community for the Kidston gold mine—one of Australia’s earliest commute operations—mining operations in Papua New Guinea (Jackson, 1987, 1988), and subsequently other mining operations in the northern part of the State and the Northern Territory, it has built its profile as a commute worker source over the past thirty years (Cummings, 2013).

Another type of natural source community can emerge in places where there is a surplus of labour relative to local needs. An example is offered by the communities on the Burin Peninsula on the south coast of Newfoundland and Labrador in Canada. Opportunities in northeastern Alberta in the Athabasca oil sands region have attracted many. Some have moved permanently, but many others have chosen to commute. A survey of the Newfoundland and Labrador Labour Force in 2010 (Government of Newfoundland and Labrador, 2011; Storey, 2010b) showed that approximately 42% of the employed male labour force of the region was working outside of the Province, of which approximately 28% were working in Alberta (Government of Newfoundland and Labrador, 2016a, 2016b). For some communities the percentage is higher. For example, in Parker’s Cove—population 310 in 2010—46.5% of the community’s labour force worked in the Alberta oil industry and another 6.9% in construction work in other parts of Canada (Parker’s Cove, 2010).

5.2 Agreement-based Source Communities

Agreement-based source communities result from negotiated preferential hiring practices, usually of aboriginal workers, from particular communities in the region where the resource operation is located.

A perceived benefit of commute operations was the opportunity to engage aboriginal workers in the wage economy without the need for them and their families to relocate (Nogas, 1976). Agreements between provincial–territorial governments and resource developers, and later directly between aboriginal groups and resource developers, have encouraged aboriginal hiring from communities in the resource site region and in so doing these communities became ‘local’ source communities.

Perhaps the most successful long-term example of aboriginal hiring and commute work in Canada has been the uranium and other mining operations in Northern Saskatchewan. In 2016 northern mining operations in Saskatchewan employed 2,866 workers. Of these 48% were hired from northern communities and flights to mine sites were provided from 12 northern communities as well as from Prince Albert and Saskatoon in the south (Government of Saskatchewan, 2016). Since the 1980s, benefits to the communities from wages and business purchases have been significant and monitoring activities suggest that the work has increased social well-being and quality of life in those communities (Community Vitality Monitoring Partnership, 2016).

In Alaska, the Red Dog zinc mine has had similar impacts on regional communities. More than half of the employees at the mine—approximately 600—are NANA (a for-profit Alaska native corporation) shareholders, many of whom are drawn from the approximately 6,200 Inupiat who live in the eleven communities of the NANA region. The mine, which was first developed in 1982 and is expected to continue through 2031, is a primary driver of the regional economy with some US\$39.3 million going to all NANA shareholders in earnings in 2015 (NANA, 2016).

5.3 Company Designated Source Communities

A number of the larger mining companies have designated specific centres as source communities for their operations. Typically used as part of a general strategy to secure labour, this practice has been more explicit in Australia than Canada. In Queensland, for example, BHP Billiton and Mitsubishi identified Cairns as a source of labour for their Caval Ridge and Daunia Mines coal operations in the Bowen Basin and in 2015 of the 950 employees there 250 were from Cairns (Dalton, 2015). In Western Australia Rio Tinto started what they describe as ‘regional fly-in/fly-out’ in 2006 with 25 employees in Geraldton. In 2015 there were 983 regional FIFO employees working for Rio Tinto flying directly to its Pilbara iron ore operations from Albany, Broome, Busselton, Carnarvon, Derby and Geraldton. In addition, employees drive-in/dive-out from Meekatharra (Burrell, 2016).

5.4 Self-identified Source Communities

‘Self-identified’ source communities are those which offer themselves as sources of labour for commute operations, anticipating that this could be an opportunity to diversify and develop the local economy. As with company-designated source communities, this is a strategy that has been more common in Australia than Canada.

In 1996 the communities of Derby and Broome in northern Western Australia both prepared submissions to the proponents of the Blendevale Prospect, a proposed lead zinc operation in the nearby Canning Basin, to act as the servicing base for the project (Broome, 1996; Derby, 1996). The project never went ahead and so neither community was successful in this self-promotion exercise, though as noted above, Rio Tinto has since designated Broome as a regional source community for its Pilbara iron ore operations.

In Queensland, the Gold Coast, south of Brisbane, has promoted itself as a source community to which end it has a group working with universities, training providers, employers and industry to identify skills and training needs, and social and support needs of FIFO families. It has also negotiated use of a dedicated airport terminal to offer flight services to resource employers. Similarly, Townsville, further north, promotes the lifestyle offered by its region as an attractive basis for a FIFO hub (Government of Australia, 2013). In Victoria the community of Stawell has proposed that it become a FIFO labour source community for its region and beyond following the decision in 2012 to close Stawell Gold Mines there (Mckenzie, 2016).

6.0 Hub Communities

Hub communities function as connecting nodes in the transfer of commute workers between their place of residence and place of work. Most are associated with source communities, but not all source communities are hubs. Likewise, most, but not all hubs are associated with airports.

Perth in Western Australia is perhaps the largest hub in terms of the number of commute workers passing through its airport and specifically through its general aviation terminal, which is used primarily by charter companies to fly workers to remote operations. Between 2000 and 2012 domestic traffic grew from 3,554,930 to 9,990,269 passengers, primarily associated with the mining boom. In 2011–2012 Perth Airport estimated that 30% of its domestic traffic was FIFO workers. Since 2012, the winding down of the boom has seen the demand for both intra- and

interstate services contract, with the number of domestic passengers falling to 8,029,524 in 2016 (Government of Australia, 2017).

By contrast, there is no airport on the Burin Peninsula, Newfoundland and Labrador discussed earlier, and workers must travel to St. John's, some 300 km, to access flights to their work at oil sands projects in Alberta.

Some workers travel directly to their project sites on chartered aircraft, others must travel on commercial airlines or charter flights to the nearest host community and then by company or other ground transport to the work site. Host communities may thus need to provide a connecting function for those arriving and departing their work rotations, as well as for locally resident workers who commute on a daily basis. Fort McMurray, Alberta, and the centre of the oil sands industry, is both a flight and a ground transportation hub. In 2013 total number of domestic passengers peaked at 1,195,437 of which 242,401 were on charter flights (Fort McMurray International Airport, 2013). Within Fort McMurray there are specialist bus companies that transport workers to and from the town to their worksites. Diversified Transportation Ltd. is one such company and estimates that it transports some 4.8 million passengers per year to and from worksites in the region (Malik-Khan, 2017).

7.0 Host Communities

The idea of a 'host community' was not relevant when commute work arrangements were first adopted as the projects for which it was used were typically in remote locations far from any local communities with any significant labour force. The commodities boom changed that with commute–camp arrangements now being used near and even in existing communities.

In the Bowen Basin of Queensland there are 20 small to medium townships, including regional centres such as Emerald, Biloela, and Moranbah, but in 2011 at least 40% of all coal mining jobs in the area were serviced by DIDO and FIFO operations (Rolfe, 2011); a number that was likely an underestimate of the actual commute workforce. In Moranbah specifically—a community of about 10,000—there were another 4,000 housed in and around the town in a variety of accommodations (Moranbah Traders Association, 2011). Limited labour supply and housing stock, and the difficulty of providing labour, housing, services and social infrastructure in a short time frame to meet the needs of construction activity in particular, plus fringe benefit tax benefits and industrial relations issues were seen as the primary corporate reasons for adopting the commute work model (Rolfe, 2011).

Though data are patchy, Western Australia offers a similar example. In 2014 there were approximately 102,300 workers in the resources sector in Western Australia of which 67,000 were commute workers involved in both construction and operations (Parliament of Western Australia, 2015). In the 2011 census the 'Usual Resident Population' of the City of Karratha was reported as 22,900 and the 'Enumerated Population' as 29,608—the difference is mainly attributable to the presence of FIFO workers. By 2016 census estimates for the same categories showed declines to 21,473 and 24,978 respectively (.idcommunity, 2016b). The City of Karratha in Western Australia, however, estimated that in 2011 there were 15,066 FIFO workers in the town and accommodations of various types for approximately 13,000 (City of Karratha, 2014).

After 2011 the number of permanent residents increased under the Western Australian Pilbara Cities Program, as did the number of FIFO workers associated with the boom,

but since 2015 and the collapse in resource prices there has been a decrease in both the permanent and the FIFO populations in virtually all host communities.

Fort McMurray, Alberta is Canada's most significant host community. The population of the Regional Municipality of Wood Buffalo, of which Fort McMurray is the main urban centre, grew from 51,406 in 2000 to 116,407 in 2012 and to 125,032 in 2015. The 'shadow population', that is, non-resident commute workers, grew from 5,903 in 2000, to 39,271 in 2012 and to 43,084 in 2015 representing 11.5%, 33.7% and 34.4% of the total population in each of those years (Regional Municipality of Wood Buffalo, 2000, 2012, 2015). Many of those in camps at a distance from Fort McMurray, and into and from which they fly directly, may never have occasion to interact with the town, but many do so either when passing through at the beginning or end of their rotations, during breaks in their roster when there may not be time to return home, or because they choose to stay in the region when off roster.

8.0 Mixed Communities

There are a number of communities that transcend the above categories. Fort McMurray, for example, serves as both a source and a host community and functions as both an air and a ground transportation hub. Others, such as Leinster in Western Australia, are caught in the transition between a traditional purpose-built SIC and a FIFO camp (Pattenden, 2005). Yet another combination is represented by what Haslam Mckenzie (2016) refers to as 'hybrid communities', such as Geraldton and Boddington in Western Australia, in which the community provides workers to local resource operations while at the same time other residents commute to work at opportunities elsewhere. These and other variants of place and work arrangements, serve to emphasize that increased labour mobility now allows workers and their families much greater flexibility to choose their particular work and lifestyle preferences than was once the case, changes which add to the range and complexity of resource community types.

9.0 Community and Regional Development Implications

When commute work in the mining sector was first introduced it was anticipated that it would eliminate many of the community and regional development issues normally associated with the SIC. However, commute arrangements generate their own impacts, the complexity of which is only now beginning to be explored. Much has already been written about the impacts of commute work on the health and well-being of workers and their families (e.g., Meredith, Rush & Robinson, 2014), but there is rather less on the economic and social effects on affected communities and regions.

Benefits associated with commute work in source, hub and host communities are, not surprisingly, primarily associated with new employment, income and business opportunities, but this can be a two-edged sword when communities become dependent on the work and business that generates those benefits. The size and economic diversity of the impacted community may help moderate both the benefits and the implications of dependence, with smaller and less diverse communities vulnerable to boom and bust effects in many respects similar to those experienced by traditional SICs. Much the same is true for costs. Demands on services and infrastructure, social disruption generated by the transient commute population, increased local housing prices, attraction of labour away from local industries and similar negative outcomes, are more easily absorbed by larger communities.

However, as the Fort McMurray experience illustrates, even larger places can be overwhelmed by the new responsibilities and consequences of the new resource landscape, and there are few communities of any size with the experience, capacity and tools to deal with the challenges that the new roles and functions present. Some of the key benefit and cost issues are summarized as follows.

9.1 Benefits

Source communities typically report significant benefits from having a FIFO workforce and, as discussed, some communities, particularly in Australia, have lobbied or actively engaged in becoming sources for commute resource workers. Being a source community is seen as a means of broadening the economic base of communities with an otherwise limited employment base, an opportunity to increase the skills base, education levels, workforce participation and wealth across the community and potentially reduce the loss of skilled workers through out-migration (Advance Cairns, 2011). Rio Tinto has also argued that coming from a common place helps develop a ‘community of interest’ within that group of workers and the potential for mutual support both at the workplace and at home (Rio Tinto, 2011). However, benefits to source communities, which are typically non-local, can adversely impact local communities and regions.

Among the first issues to be recognized as a consequence of commute work was the problem of ‘fly-over effects’ in which linkages between the resource project and suppliers tended to be interregional rather than intraregional resulting in a loss of regional multiplier benefits (Storey, 2001). In Canada this issue has been addressed through the use of benefits agreements, corporate social responsibility and other government initiatives designed to try to ensure that local and regional benefits are realized (Kielland, 2015; Sosa & Keenan, 2001). In Australia local benefits capture is so far a much less well-developed process (Regional Australia Institute 2013).

In Canada in the Northwest Territories, for example, in 1987 a total of approximately C\$150 million was spent on goods and services by operating mines and exploration companies of which an estimated 36% was with NWT-based suppliers (Shelley, Fraser, Pammenter, Stephenson, & Kyba, 1987). By 2011 total expenditures had increased to C\$768 million of which 65% was spent with NWT businesses (Government of the Northwest Territories, 2013).

In Saskatchewan, mining companies operating in northern Saskatchewan enter into two agreements with the province—a mineral surface lease agreement and the human resource development agreement—the primary purpose of which is to ensure that socio-economic benefits from mining go to northern residents. In 2016 48% of the labour force were northern residents and 41% were aboriginal. The long-term goal is 67% northern participation. In addition, the mining industry purchased 43 per cent (C\$316.3 million) of total goods and services from northern suppliers or joint ventures with northern ownership, up from approximately C\$75 million in 2000 and exceeding the target value of 35% (Government of Saskatchewan, 2016).

Leakage of local benefits, however, remains a problem. Commute work allows workers greater choice about where they live. Relocation of workers from smaller communities means a loss of incomes and expenditures in those communities. In the Saskatchewan case only 67% of northern hires continue to reside in the North, the remainder having moved to communities further south from which they now commute (Government of Saskatchewan, 2016). The Red Dog mine in Alaska shows

similar patterns with native workers relocating from the northwest region to live in and commute from urban centres such as Anchorage or Fairbanks (Storey & Hamilton, 2003).

Relocation to larger urban centres is an option taken up by many engaged in commute work. The impacts on the receiving communities may include a broad range of economic and social impacts, many of which derive from the relatively high levels of income earned by commute workers. These may include impacts on local housing prices, expenditures on vehicles, recreational vehicles, alcohol and drug use, family violence and lower levels of volunteerism during growth periods and falling house prices, bankruptcies, out-migration and auctions of personal effects during busts. The degree to which the community—rather than individual workers and families—can absorb the volatility associated with changes in the resource cycle is in part a function of community size and economic diversity, with smaller SICs the most vulnerable. For example, in the Shire of Ashburton in the Pilbara iron ore region of Western Australia only 31.8% of the 23,359 who work in the Shire live there. The remainder commutes from outside the region, with most of these coming from the Greater Perth area (idcommunity, 2016c). During the recent downturn, median house prices in Tom Price, the administrative centre of the Shire, fell 72% from a peak of A\$800,000 in 2014 to A\$225,000 in 2017 (reiwa.com, 2018), while median prices in metropolitan Perth fell only 8.2% from A\$550,000 in 2014 to A\$505,000 in 2017, reflecting both boom and bust effects and the differences in the size and diversity of the economic bases of the two regions and their communities.

In source communities such as those on the Burin Peninsula in Newfoundland repatriation of incomes earned in Alberta may be seen as a de facto rural community economic support program in that, in the absence of other local employment opportunities and without the infusion of money earned elsewhere, many communities might no longer be viable and workers and their families would not be able to continue to live there (Storey, 2016). The downside, recently experienced with the downturn in commodity prices, is that communities that have become ‘dependent at a distance’ on commute-based projects are now vulnerable to boom-bust cycles in much the same way that residents of traditional SICs are (Storey & Hall, 2017).

Hub communities are usually airport communities, but most have received very little attention to date and there are few data available to allow analysis of the contribution of the commute component of air traffic. Direct, indirect and induced impacts from employment and wages, contributions to taxes, spending by non-locals, capital expenditures by the airport authority are among the main community benefits. In addition, there may be wider ‘catalytic effects’ resulting from the presence of the airport or particular types of air service including the facilitation of local trade and investment and generally enhancing the productivity of other business sectors in the economy. As in other cases, the relative dependence on resource-related business has an important effect on community growth and sustainability.

Perth Airport, for example, notwithstanding a 7% decline in domestic and charter traffic between 2012–2013 and 2016–2017 associated with the commodities downturn (Perth Airport, 2018), nevertheless made a net profit of A\$102.4 million in 2015–2016 on total revenues of A\$489.7 million (Perth Airport, 2016) and continues to invest in new airport infrastructure, airport retail facilities and development of airport property not required for its transport functions. Opportunities in tourism and other developments in this case have more than offset declining charter traffic.

In Fort McMurray, while the airport makes a significant contribution to the local economy, fewer alternative traffic generation opportunities exist. The airport authority opened a new C\$258 million terminal in 2014, but with domestic traffic declining by 40% between 2013 and 2017 and charter traffic by 78% (Fort McMurray International Airport, 2017) layoffs and cost-cutting measures, such as substitution of union with non-union employees, have been necessary (Jones & Bascaramurty, 2015)¹.

At the other end of the hub scale spectrum Busselton-Margaret River, Western Australia has a small airport that supports only ‘closed FIFO charters’, that is, there are no regular public transport air services. Charter flights currently connect to Perth and Geraldton and directly to mine sites in the Pilbara. Until now traffic volumes have been closely related to resource activity levels. An A\$69.3 million investment to upgrade the existing airport facilities is underway in preparation for regular public transport air services to interstate and international destinations in South East Asia and China (City of Busselton, n.d.) that will offer some diversification of economic activity.

Not all hub community commute effects relate to airports. For example, Rio Tinto and BHP Billiton have adopted BIBO—bus-in/bus-out—arrangements from designated hubs in Queensland, such as Mackay, and elsewhere as one way of addressing fatigue and traffic incidents potentially associated with DIDO—drive-in/drive-out (Rio Tinto, 2015). GVK Hancock also offers a BIBO option for their coal projects in the Galilee Basin as a way of encouraging regional employment (Tyrrell, 2015) and Cliffs Resources have used BIBO over FIFO to try to reduce commute costs between Perth and their operation at Koolyanobbing, some 250 km distant (Kruger, 2016).

9.2 Costs

While source and host communities both report benefits and costs of their associations with FIFO, host communities are typically more concerned with the costs. One of the main concerns of those living in or responsible for managing host communities is the use of community infrastructure and services by the temporary commute workforce who do not pay their share of the costs. Sometimes referred to as ‘fly-through’ or ‘free rider’ effects the burden of the costs falls on the community and local residents, affecting the local cost of living and access to and the quality of the infrastructure and services delivered. Medical services are a case in point. The submission from Moranbah Medical to the House of Representatives inquiry into FIFO and DIDO work practices in Regional Australia (Moranbah Medical, 2011) indicated that 35% of all patients in September 2011 identified their usual place of residence as a place other than Moranbah, with most of those coming from communities well beyond the catchment area for Moranbah Medical’s services. This represented a significant increase from the 18% reported in June 2007. These increased demands placed a significant burden on medical service providers and restricted access to services for local residents.

¹ In addition to the downturn in the resource sector, wildfires in Fort McMurray in May 2016 resulted in commercial air services being suspended from May 5 to June 10. As a result, the total number of passengers in May 2016 fell to 9,769 compared with 92,087 and 64,550 for the same month in 2015 and 2017 respectively (Fort McMurray International Airport, 2017).

Other issues associated with the presence of a transitory workforce include rapid changes in town identity and diminished local amenity. In 2011 ArcelorMittal announced that it would expand its Mont Wright operations near Fermont, Quebec (Marotte, 2011) and shortly after, Cliffs Natural Resources announced that it would expand production at its newly acquired Bloom Lake operation nearby. Among other accommodation strategies ArcelorMittal built a 1,000-person camp at the Mont Wright site some 25 km from Fermont, which was later used by Cliffs in 2013 to house its Bloom Lake workforce (“ArcelorMittal cède son campement minier,” 2013). Post-construction, 290 of the approximately 1,000 ArcelorMittal production employees (29%) continued to commute, as did 90% (539 of 579) of the Bloom Lake production workforce (“Bloom Lake may close”, 2014). Fermont, over a very brief timeframe, thus evolved from a traditional residential mine town to a mixed ‘near-town’ camp–residential community. This has proved stressful for many of its permanent residents. Simard and Brisson (2013) found increased waiting lists for health care services and relationships between residents and commute workers had deteriorated to the point that the presence of rotational workers had raised the issue in the minds of some permanent residents as to whether living in Fermont on a permanent basis was still a good idea as it was no longer the ‘community’ that it once had been.

Similar experiences with in-town accommodation strategies are reported in Australia. Occupation of housing by multiple temporary residents who pay little attention to property upkeep, occupy parking spaces with large vehicles and disrupt the neighbourhood through increased noise levels are some of the effects which may help to ‘bring down’ a community (Queensland Nurses Union, 2011). In addition, the presence of a large number of non-residents is seen to contribute to an ‘us versus them’ mentality and a view that local identity, the sense of community, and community safety is being threatened. The presence of a large number of young male workers may result in law and order issues and, even where it may not be the case, the perception that FIFO workers are responsible for violence and disruption contributes to the hostility of the community towards them and increased dissatisfaction with community life (Issac Regional Council, 2011).

In Canada, communities in Alberta’s oil sands region have reported that their services, infrastructure, safety and overall social well-being are significantly compromised by the presence of rotational workers, regardless of whether these workers were housed in the community in hotels–motels or outside of the community in camps (PetroLMI, 2015). While such costs are rarely well documented, rotational workers do visit Fort McMurray—33% of those in project accommodation were reported as visiting at least once every two weeks (Regional Municipality of Wood Buffalo, 2012)—and they do use core facilities. Where funding for core facilities is allocated at least in part on the basis of population, the municipality may miss out. One estimate, for example, suggests that the municipality loses C\$8–15 million per year in provincial health care funding because those in project accommodations are not included in the allocation calculation (Lim, 2015).

The more general problem, in Canada at least, is that the provincial and federal governments have failed to invest in infrastructure and services at a rate and in a timeframe consistent with the growth in resource activity. In the Regional Municipality of Wood Buffalo, and in Fort McMurray in particular, in 2011 as the boom was moving to its peak, more schools, improved roads and release of land for housing development continued to be key infrastructure constraints facing the

municipality, notwithstanding that these needs had long been established and that further growth was anticipated (see, for example, Alberta 2006).

While growth can bring new opportunities to local businesses, it may also have negative effects. Incoming resource companies drive up the price of local labour such that local non-resource-based companies cannot compete and may be forced to reduce service levels or even close. At the same time demands on housing from the commuting population can have negative effects when non-resource-based companies and incoming workers rent or buy into the typically limited local supply, driving up costs to the detriment of residents and incoming non-resource sector workers.

Dependence on the resource for jobs, business opportunities and incomes can be a problem for both traditional SICs and source communities. Uranium operations in northern Saskatchewan, for example, have been hard hit by reductions in world demand following Japan's Fukushima disaster in 2011 and the subsequent phasing out of Germany's nuclear program. Shutdown of the Rabbit Lake mine in April 2016 with the loss of 500 jobs, and the temporary—January 2018—and then permanent closure—July 2018—of the McArthur Lake mine and the Key Lake processing facility, with the loss of another 550 jobs has and will have a significant impact on the provincial economy as a whole, but is likely to have disproportionate impacts on some of the smaller communities in the region. Approximately half of the workforce are indigenous persons, many of whom live in smaller northern communities where there are few alternative job opportunities (Canadian Press, 2018) and where the closures will potentially negate the benefits of commute work described in section 5.2

10.0 Conclusions

Notwithstanding that commute work has been used in the mining sector for the past 40 years there is still much to be learned about its implications and consequences, particularly how it affects community and regional development and, where necessary, how those outcomes can best be managed. There is little doubt that commute work has fundamentally changed the resource community landscape and seems likely to continue to do so in the future.

Introduction of commute–camp arrangements was originally in response to labour supply and accommodation issues at remote locations. Near-town and in-town accommodations for commute workers is a phenomenon that has largely emerged since 2000 in response to the commodities boom and because of the inability of communities near resource projects to supply sufficient labour and accommodation facilities required by the resource companies. Host communities, in particular, have borne the burden of rapid development and have typically lacked the resources to meet increased infrastructure and service demands. Where they have invested to meet those demands, downturn in the resource cycle has often left them with surplus capacity replicating some of the issues associated with traditional resource towns that the commute option was anticipated to avoid.

Similarly, sourcing workers from particular source communities is also a recent phenomenon developed in response to the high demand for labour during the last boom. The community impacts of early commute operations were geographically dispersed, now it is not uncommon to find communities with significant numbers of commute workers, making those communities more vulnerable to downturn.

Planning for and management of the community implications of commute work has not kept up with the growth in its use. While some issues, such as fly-over effects,

have been addressed relatively successfully, at least in Canada, there has been far less success in dealing with fly-through/free rider effects in either country. Impact assessment processes are poorly equipped to deal with the cumulative effects of multi-project activities, with the Alberta oil sands example being a case in point, or with non-local effects associated, for example, with the impacts of the dependence at a distance phenomenon. Difficulties in addressing community and regional planning issues are compounded by lack of data and the communities affected typically do not have the resources, economic or political, to deal with the issues themselves. At the same time higher levels of government often seem more interested in the economic benefits they receive from resource developments than in helping to address the community costs incurred in generating those benefits.

Much needs to be done to better understand the new resource landscape that has and is emerging. Source, host and particularly hub communities are as yet ‘under-researched’. Some of what we know comes from case studies (e.g. Hoath & Haslam Mckenzie, 2013), some from submissions to government inquiries (e.g. Parliament of Australia, 2013), but more often has to be inferred from data not collected with this particular question in mind. While this paper offers a preliminary typology of commute community types it fails, for example, to adequately address the question of scale, and the fundamental differences in both the concept of community and the implications for development of places that range from metropolitan Perth to the outport of Parker’s Cove that are considered here. As one anonymous reviewer of this paper noted, if we are to be able to better manage resource development outcomes we still need to better understand the processes by which communities become source, host or hub communities and the industry, government and community decisions that help drive those processes.

Parker would likely have been surprised to see how his notion of the non-permanent community has evolved. His argument that the permanent single enterprise community was not a rational approach still holds true, but the current commute approach, though once anticipated to be able to do so, has not resolved many of the issues associated with the single industry community with which he was concerned, and has in fact resulted in others which now need to be addressed.

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