CITY OF NEW WESTMINSTER

CREATING A CIRCULAR ECONOMY IN NEW WEST: PILOT TEST OF THE NATIONAL INDUSTRIAL SYMBIOSIS PROGRAM (NISP®)

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Cover photo courtesy of NISP Canada and Nessim Boudghene.

Creating the Circular Economy through Industrial Symbiosis

Manufacturing businesses have traditionally operated in a linear fashion. Raw materials go in; products and wastes go out. In recent years, there has been a global movement to change how we see 'waste'. Businesses, governments and individuals have been interested in keeping raw materials in use for as long as possible. By finding value in all business outputs, the materials circulate back through the economy, creating the **circular economy.**

In a circular economy, the aim is to build a more cyclical system where the waste materials from an economic process are used by other equally valuable processes to keep the resource in use for as long as possible (Stahel, 2016). The concept of feedback and cycling is ancient, as it naturally processes and systems are inherently circular. Yet, this concept saw a gain in interest post-World War II as technological advances highlighted complexity of systems. At the end of the last century, a number of practices developed to shift towards a circular economy, including cradle-to-cradle design, biomimicry, and industrial ecology (Ellen MacArthur Foundation, 2017).

The concept of **industrial ecology** looks to the biological cycling and symbiosis of nature as the model for resource movement and management in industry (Lombardi & Laybourn, 2012). **Industrial symbiosis** applies this concept to the movement of resources between firms. According to Chertow (2007):

> Industrial symbiosis engages traditionally separate industries in a collective approach to competitive advantage involving physical exchange of materials, water and by-products. The keys to industrial symbiosis are collaboration and the synergistic possibilities offered by geographic proximity (p. 29).

Industrial symbiosis has been applied through a variety of models globally. Mutually beneficial relationships between businesses have developed both organically and by design, which has provided three general models through which industrial symbiosis is accomplished: self-organization, facilitation and top-down planning (Paquin & Howard-Grenville, 2012). Research has highlighted the importance of "coordinating bodies" (Yap and Devlin, 2016, p. 11) whether an industrial organization, a state agency, or otherwise to successfully enable and sustain an industrial symbiosis model (Yap and Devlin, 2016).

National Industrial Symbiosis Program

The National Industrial Symbiosis Program (NISP®) is one model used to achieve industrial symbiosis. The model was first applied in the United Kingdom where it was tested regionally and the successes led to a nationally organized program in 2005 (Paquin and Howard-Grenville, 2012). Since its start in the UK, the model has been adopted by thirty other countries around the world, making Canada the 31st country to apply this form of facilitated industrial symbiosis. The participating countries are identified in Figure 1.

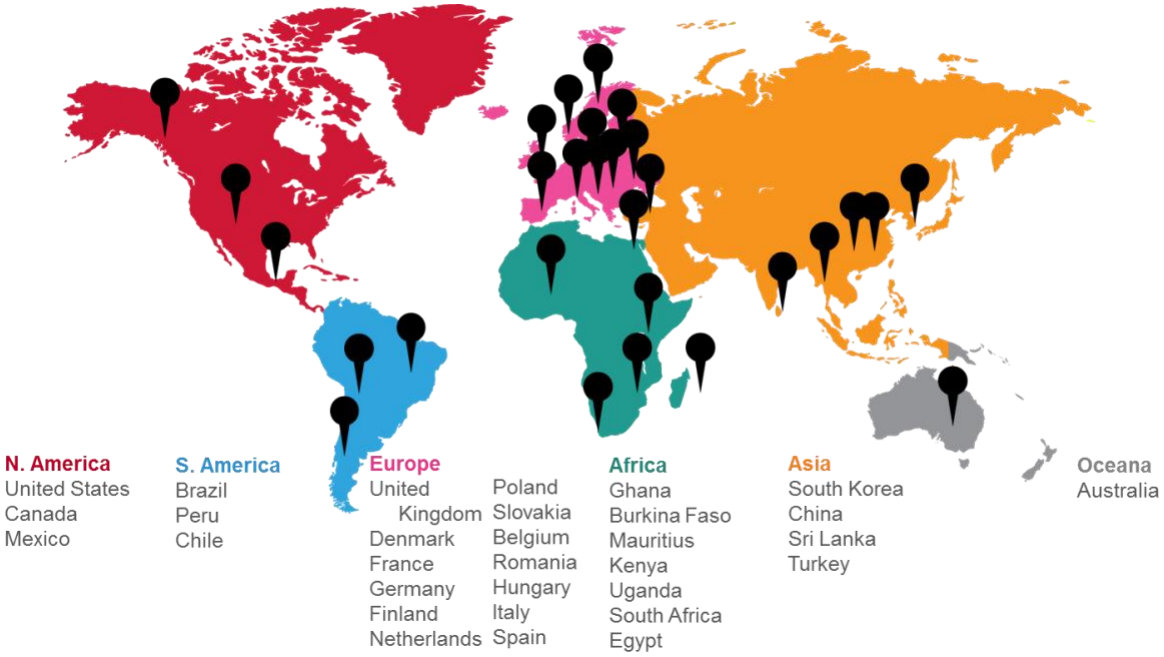

Figure 1: Countries that have applied the NISP model of industrial symbiosis (Makinen, 2018).

The NISP model consists of four distinct components, as described by Casavant et al, 2016:

1. Facilitated workshops, rather than technical studies, to identify industrial symbiosis opportunities;
2. Locally-based practitioners, trained to international NISP protocol are dedicated to nurturing industrial symbiosis opportunities from idea to implementation.
3. An information technology platform, SYNERGie®, that supports the NISP practitioners and ensures that all benefits are accurately quantified,
4. Facilitated workshops and the services of practitioners are free of charge, reflecting the NISP principle of low barriers to business participation.

The NISP process involves six steps, which proceed iteratively and build upon each other. The NISP Practitioners reach out to business to build registration for a workshop. The facilitated workshop identifies the resources businesses have and want as well as the potential interest from other

businesses. All data is entered into the SYNERGie model and analyzed to develop and manage resource synergies between businesses.

As additional workshops are conducted in a given region, more contacts and resources are added, thus growing the network. Businesses matched in the workshop are able to reach out directly to build a new business relationship or are supported to do so through NISP Practitioner site visits and further facilitation. Finally, the businesses negotiate the details of the resource matches to bring the synergy to fruition. Once business deals are completed, and the economic and environmental impacts are tracked in the SYNERGie program. Through the news of successes and additional business outreach, more businesses are contacted to participate, at which point the NISP cycle continues. Figure 2 shows the six steps and their relationship to each other.

Figure 2: The Six Iterative Steps of the NISP Process.

NISP in Action

The NISP program has been applied successfully in several European communities. The NISP process has been applied to solve waste problems from a number of different angles. Whether it is matching resources between businesses, identifying a group of businesses with similar needs, or discovering new opportunities based on 'waste' resources, the facilitated, business-sense approach allows unique industrial symbiosis solutions to arise.

Example #1: Turning Waste in Products through Aggregation in Romania

Twenty-one wood producers in Romania faced the problem of having to manage their waste sawdust, wood chips and board trimmings. This material, although it made up 36% of the wood processed, did not have a sales channel for any one mill and the waste was causing water course contamination. The NISP process enabled individual wood producers to work collectively to achieve sufficient economies of scale to send this waste to a medium density fiberboard manufacturer seeking non-virgin wood material. The synergy between these businesses resulted in 446,100 tonnes of waste diversion and 2,558 hectares of virgin forest saved ("A New Chance", n.d.).

Example #2: New Business Development from Waste CO_2 in England

A chemical production plant was looking for a way to use their process by-products, particularly the CO_2 and waste heat. Through NISP facilitations, the production plant worked with a local fruit and vegetable grower build a greenhouse that would recover both byproducts for use in tomato production. Tomato production in the UK is limited due to high energy costs, which were alleviated by the by-products. The greenhouse now produces of 300,000 tonnes of tomatoes annually and resulted in 65 new jobs. In addition, the industrial partner reduced their CO_2 emissions by 12,500 tonnes.

Value of Industrial Symbiosis to New Westminster

Industrial symbiosis achieved through NISP offers a range of economic development and policy opportunities for a municipality. The core concepts of the NISP process include waste reduction, greenhouse gas emission reduction, innovative solutions, and local economic development that align with a number of City of New Westminster's policies and programs.

Intelligent New West

Intelligent New West is an initiative that builds upon the City's fiber-optic infrastructure and an open government philosophy to improve access to public data and increase opportunities for residents, businesses, and institutions in the new digital economy. Through this initiative, New Westminster businesses, institutions, and residents are engaged to work collaboratively and explore intelligent ways to tackle municipal challenges and opportunities in areas including transport, citizen engagement, open government, and the environment (City of New Westminster, n.d.).

Industrial symbiosis supports Intelligent New West collaborative efforts in multiple focus areas. Within the Intelligent Economy focus, NISP builds connectivity to create mutually beneficial resource exchanges, which allows more efficient use of resources and business development. The collection and use of data to connect companies and goods supports the Smart Mobility focus area. The tracking of resource exchanges and their benefits supports businesses efforts to take an Intelligent Environment approach to their operations (City of New Westminster, n.d.).

Our City 2041: Official Community Plan (OCP)

The City of New Westminster's (OCP) provides a vision, goals, and policies for the City to the year 2041. The guiding document reflects the aspiration of the City and provides direction for achieving that vision through high-level goals, specific actions and guidelines (City of New Westminster, 2017).

The major link between NISP and OCP is within Goal 3: "New Westminster has a diverse and adaptive economy and is a desirable place to work, live, shop, and invest." As NISP is business-oriented, the program works to provide an innovative and adaptive solution to industrial problems, which aligns with the OCP goal. This alignment can be found specifically in the two following policies:

- 3.1: "Foster knowledge-based and creative industries that cultivate innovation, promote entrepreneurship and generate employment" (City of New Westminster, 2017, p. 56).

NISP's ability to cultivate innovation through creative resource use and re-use promotes new industrial relationships, potential for new entrepreneurial ventures through the discovery of 'waste' resources, and job creation through newly developed sales channels.

- 3.2: "Protect the industrial land base and encourage employment-intensive and sustainable industrial uses" (City of New Westminster, 2017, p. 56).

NISP promotes sustainable industrial uses through more effective use of virgin materials, as well as more productive use of other 'waste resources' such as idle equipment, backhaul trucking, and other industrial capacities (City of New Westminster, 2017).

Community Energy and Emissions Plan (CEEP)

The CEEP looks at how to support a livable, sustainable community as the City grows over the next 25 years and beyond. The CEEP identifies 35 specific program and policy actions to reduce community-wide energy use and greenhouse gas emissions (Stantec Consulting Inc., 2011), thus providing important community and environmental benefits. Within the CEEP goals, there is very direct connection to industrial symbiosis.

Under Strategy 5.4, the strategy for energy supply, the overarching goal is outlined: "To encourage renewable, responsible & local energy" (Stantec Consulting Inc., 2011, p34). Within the actions outlined to achieve this goal, there is a direct connection to industrial symbiosis in Action 13: "Identify and promote 'eco-industrial networking' opportunities" (Stantec Consulting Inc., 2011, p35).

Industrial symbioses are often developed within eco-industrial parks which were intentionally developed to support resource sharing and meet environmental regulations (Zhang et al., 2015). The broader phrasing of "eco-industrial networking" is directly aligned with the NISP model as the resource connections between businesses are developed as a network. Companies do not have to be co-located to benefit from industrial symbiosis, but utilize the facilitated resource network to achieve environmental and economic benefits.

Strategy 7.3 of CEEP outlines the strategy for maximizing recovery and recycling, which aims to maximize reuse, recycling and material recovery. Here, City actions follow Metro Vancouver's Integrated Solid Waste and Resource Management Plan (ISWRMP), as Metro Vancouver is the regulatory body responsible for managing the garbage produced by residents and businesses in the Lower Mainland (Stantec Consulting Inc., 2011). Supporting ISWRMP Strategy 2.1 to increase the opportunities for reuse, IS shifts industries towards a circular economy. The NISP model encourages resources to be in economic use for longer periods of time due to re-use of resources that were previously landfilled or otherwise managed as 'waste'.

The primary indicators of CEEP progress are:

1. Total Greenhouse Gas (GHG) emissions (tonnes of CO_2e)
2. Total GHG emissions from the buildings sector (tonnes of CO_2e)
3. Total GHG emissions from the transportation sector (tonnes of CO_2e)
4. Total GHG emissions from solid waste (tonnes of CO_2e)
5. Total energy consumed (GJ per capita)
6. Total electricity consumption (GWh per capita). (Stantec Consulting Inc., 2011, p.65).

As GHG emissions and energy savings are commonly reported metrics from successfully NISP synergies, these values from NISP Canada metrics can be integrated within the CEEP indicators. Similarly, a secondary indicator in Strategy 7.4 of tonnes of organic waste diverted from the landfill can be included in CEEP reporting.

Environmental Strategy & Action Plan (ESAP)

Currently in draft form, the City's ESAP is a comprehensive environmental master plan. It builds on the City's sustainability framework, Envision 2032, and provides a single coordinated effort for the areas of environmental protection, climate change mitigation, ecological enhancement, environmental education and resilience (City of New Westminster, 2018). ESAP is tentatively scheduled to go to City Council in fall 2018.

The most important alignment between ESAP and NISP is within Goal #8: "Minimize waste generation and maximize waste diversion from the landfill" (City of New Westminster, 2018, p.36). With Metro Vancouver's regional target at 80% of municipal solid waste diversion by 2020 (City of New Westminster, 2018), NISP's strategy to find new industrial uses for previous 'waste' resources boosts diversion. Businesses are targeted in Strategy 8.4: "Support businesses in waste reduction strategies" (City of New Westminster, 2018, p.36), where the City will work with Metro Vancouver to create tools for increased diversion (City of New Westminster, 2018). Further, the strategy identifies a specific action 8.4b to "explore the feasibility of an eco-industrial network for New Westminster" (City of New Westminster, 2018, p.37). As previously discussed under the CEEP section, the NISP model is an important tool to understand the feasibility and opportunities of an eco-industrial network in New Westminster and in the broader Metro Vancouver region, as well as a model to build the network itself.

Challenges and Opportunities

As the City of New Westminster grows, environmental emissions, waste management and sustainable industrial development will be greater challenges for the City. The policy environment supports progressive and creative solutions to these challenges. There are direct connections between City policy action items and the principles of industrial symbiosis, making the NISP Canada project a valuable tool to support the City's efforts.

Creating a Circular Economy in New Westminster

Support for NISP Pilot/Phase I

The Lighthouse Centre for Sustainable Building (Lighthouse) developed the idea of having an industrial symbiosis effort in Canada. The NISP process had been proven internationally, and was expanding to different countries with local interest and engagement.

Lighthouse completed a model feasibility study in 2016 to determine how the NISP model could be applied and financed in a Canadian context. The study reported that the model was feasible with adaptations in terms of region size and funding (Casavant et al., 2016).

In light of the results, Lighthouse developed a subsidiary, NISP Canada, and sought funding for a pilot test of the NISP approach in Canada. Two regions were identified: the Lower Mainland of British Columbia and the Greater Edmonton Region of Alberta. With the financial support of local municipalities, including Metro Vancouver Regional District, City of New Westminster and City of Surrey, as well as Province of British Columbia (Ministry of Energy & Mines), NISP Canada was able to secure major pilot funding from the Federal Government's Western Diversification Fund.

The pilot program is currently underway until March 2019. The NISP Canada pilot consists of six business opportunities workshops (BOWs) in each region with local facilitators who do a variety of outreach to business and provide direct support to see the resource matches develop into mutually beneficial relationships. The title of the New Westminster workshop was "B2B Circular Economy Workshop."

City of New Westminster Role in NISP Pilot

As part of the City of New Westminster's role in the pilot, one BOW was held in the city at the Anvil Centre (a City-owned and managed arts and cultural centre) on Wednesday, June 6th, 2018. City staff, in particular Norm Connolly, Community Energy Manager and Carolyn Armanini, Economic Development Coordinator, were involved in the logistics and business outreach for the workshop, and worked with the UBC Sustainability Scholar to develop a local business outreach and engagement approach that helped drive attendance at the Circular Economy workshop. The Scholar program is administered by UBC's Sustainability Program, and co-funded by BC Hydro's Sustainable Communities.

New Westminster Business Outreach

Based on discussions with City staff as well as the priorities outline in the OCP, small- and medium-sized enterprises (SMEs) and business with local industrial bases were identified as priority business to invite to the BOW. The NISP Canada team advised that manufacturing would most benefit from the BOW and therefore also included in the priorities.

In order to identify the businesses and leverage the Intelligent New West resources, the Open Data business listings for resident business was used as the complete listings of resident businesses. In order

to identify the priority business within the over 3,000 registered companies, two filters were used to select businesses for outreach:

- The North American Industry Classification System (NAICS) code indicated on their business license[1]; and
- City staff recommendations regarding other local businesses and public sector organizations to invite.

Businesses with license NAICS codes in manufacturing, manufacturing-related, or other resource-management operations were added to the list of priority businesses. Subsequent discussions with City staff in the Engineering Services and Economic Development departments identified additional local businesses and organizations to be included in this list. These filters produced a list of 241 priority businesses.

A covering letter from the City of New Westminster with a NISP Canada workshop invitation flyer was prepared and sent by post to all priority businesses. The invitation documents are presented as Appendix A.

Following the mail-out, on-going telephone call follow-up with 55+ businesses was done by the UBC Sustainability Scholar to further explain the value of the BOW and encourage registration.

Promotion of the BOW was also shared via:

- Invitation provided to Economic Development Committee members,
- Invitation provided to Intelligent City Advisory Committee members,
- City Twitter accounts (@InvestNewWest1 and @InnovateNW), and
- Feature in the New Westminster Chamber of Commerce Newsletter.

The direct outreach was found to be particular effective at acquiring registrations and connecting to businesses that could most benefit from the BOW.

[1] The priority two-digit NAICS codes used to identify businesses were: 11, 21, 22, 23, 31-33, 41, 44-45, 48-49, 56, 72, and 81.

June 6 B2B Circular Economy Business Opportunities Workshop

The business opportunities workshop (BOW) took place on June 6th from 8:30 am to 1:00 pm at the Anvil Centre, New Westminster. Twenty-six organizations and two NISP Canada partner organizations attended, totaling 28 organizations with 31 individual attendees. This number of attendees was described as a preferred size for a NISP workshop. The number of attendees attending by city is presented as Table 1 and a breakdown of enterprise size is presented as Table 2. The New Westminster businesses attending were: 100 Braid Street Studios, Douglas College, Fraser River Pile & Dredge Inc., Green by Nature EPR, Kruger, Seen Signs and Urban Impact Recycling.

City	Number of participating organizations
New Westminster	**7**
Burnaby	3
Delta	2
Langley	1
Mission	1
Portland, US	1
Port Coquitlam	1
Richmond	4
Trail	1
Vancouver	7
Total	**28**

Table 1: Number of organizations attending the Business Opportunities Workshop by municipality.

Number of Employees	Number of Organizations
Less than 10	8
Less than 100	6
Less than 1000	8
More than 1000	6
Total	**28**

Table 2: Participating organization sizes by employee numbers.

The list of attendees and contact information as prepared by NISP Canada is shown in Appendix B.

The June 6th Business Opportunities Workshop opened with a welcome from the City, followed by presentations on international and local industrial symbiosis activities. The workshop format was then explained to the participants before the resource identification and matching process began.

Each table had six to eight participants with assigned seating completed in advance by the NISP facilitators. Each table had a table facilitator and assistant to oversee the resource discussion process and record results. Each participant identified and recorded up to five resources they "HAVE" on a designed-for-purpose green form. These resources can be any item a company has that does not currently have a sales channel, including waste materials, equipment capacity, expertise, etc. Similarly, each company records up to five resources they "WANT" on yellow forms.

Figure 3: View of one of four tables of business leaders and representatives during the resource matching discussions at the June 6 workshop. Photo: Nessim Boudghene.

Once the forms were completed, each individual at the table had the opportunity to read their resources ('HAVEs') out loud and other businesses can then indicate their interest in that resource by writing their name on the form. Each resource match is deemed a potential synergy.

Figure 4: Participant discussions during the resource matching phase of the June 6 workshop.

Each table's set of forms is then circulated to other tables and the process is repeated such that every attendee has the opportunity to indicate interest in all the resources that day. At this stage, all potential matches are encouraged, allowing cross-sector, non-traditional matches to be identified. A graphic representation of the NISP workshop process is presented as Figure 5. Once the resources had circulated to all tables, the workshop was complete. Participants were then encouraged to network over a catered lunch.

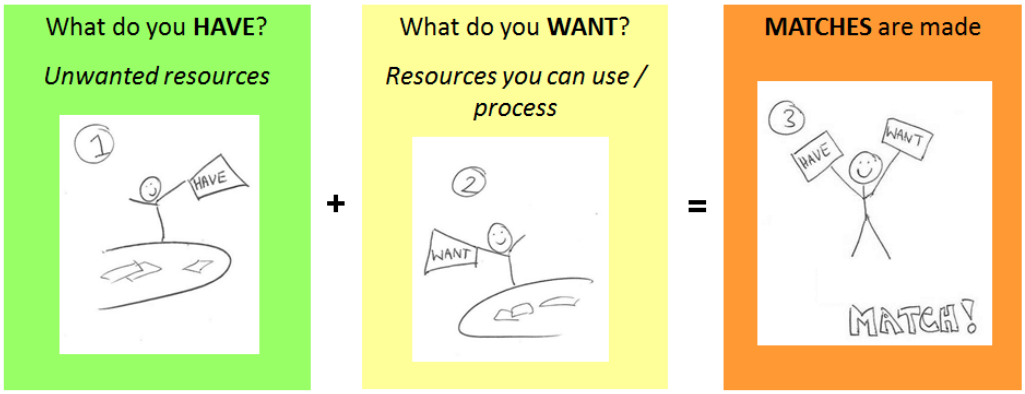

Figure 5: A graphical representation of the basic concept of the NISP Business Opportunities workshop (Makinen, 2018).

Data Management

All resource data and potential synergies are documented in the specialized database model SYNERGie by the NISP Canada staff, assisted by the Sustainability Scholar.

The model can then produce a report for each company of all the resources they identified as "HAVE" or "WANT" and any other company's "HAVE" or "WANT" resource that the business indicated interest in.

Within two days of the workshop, all attendees received the following documents from NISP Canada by email:

- Company and contact information for all attendees
- A one-page workshop summary report
- A customized report of all company-identified resources and potential synergies.

NISP Canada also produced a grid-based summary report of all attendees, identified resources and matches. The company contact information, the one-page summary report and the grid summary report are presented as Appendices B through D.

Synergy Follow-up

While the workshop is a crucial part of the NISP process, it is also simply the first step. The follow-up provided by the NISP Practitioners, supported by the City of New Westminster Sustainability Scholar, assists the participating businesses to develop the potential synergies identified at the workshop.

The NISP Practitioners, as well as by the Sustainability Scholar, support the synergy through site visits, resource quantification, communication, and facilitated meetings. To note, the NISP Practitioners are not typically involved in the direct business negotiation of agreements or payment terms.

Each business is able and encouraged to follow-up with their synergy partner directly. Through the provision of the report and the workshop attendee contact information, each business has the information necessary to begin the synergy follow-up. However, this initial follow-up process can be challenging for busy businesses unfamiliar with connecting to businesses outside their industry. As such, the follow-up provided by the NISP Practitioner increases the speed and completion rate of synergies.

Site visits

Follow-up varies depending on the needs of the company, but generally begins with a site visit to the company location. The visits focus on identifying the priority resources for the company, the most useful or valuable synergies, as well as further quantifying the available resources.

The site visits with organizations who attended the June 6th workshop are currently underway. While some site visits have been completed, many are still being arranged by the NISP Practitioners based on business availability.

Of note, two site visits were completed for businesses that could not attend the June 6th workshop. These site visits were completed because the organization was deemed to have significant local resources that would benefit the wider NISP contact network in the Lower Mainland by having their resources captured by the SYNERGie tool as early as possible. These site visits were completed with:

- Stella-Jones Inc. (Coquitlam, bordering on New Westminster), a wood preservation facility
- Royal Columbian Hospital (New Westminster), a regional hospital managed by the Fraser Health Authority.

Results

From the June 6th workshop, **171 distinct resources** were identified and **220 potential synergies** were discussed. These numbers reflect the blue-sky thinking encouraged at the workshop to allow unexpected, cross-sector synergies to be identified. This data adds to the resources and synergies identified at the previous three pilot BOWs, bringing the current total numbers to 1149 resources and 744 potential synergies identified in the Lower Mainland.

As the workshop follow-up is still in process, the results from the NISP pilot can be reported as a current status of the potential synergies and current outreach. These synergies will continue to be developed by the NISP Canada Practitioners in order to produce mutually beneficial business relationships between participating businesses. Once established, the completed synergy results of the program will be reported by NISP Canada. This reporting will include the successful synergies as well as the following metrics:

- Landfill diversion
- CO2 reduction
- Virgin material savings
- Hazardous waste eliminated
- Water savings

- Cost savings
- Additional sales
- Employment opportunities created (new and retained jobs)

This report is expected after the pilot phase of the NISP Canada efforts is completed in March 2019. The exact timing of the final reporting remains to be determined as there is a possibility that the pilot may continue past the current expected end date of March 31, 2019.

Potential Synergies

The following results are presented as the current status of the synergies involving New Westminster businesses and organizations at the time of writing. The results are presented as Appendix E.

The synergies presented in the above table highlight the priority resources identified by New Westminster businesses themselves which are currently in the follow-up process. There are other resources and synergies that may be developed either by Practitioner facilitation or by directly between businesses. All synergies are tracked by NISP Canada within the SYNERGie program and updates can be requested from the Practitioners.

Ongoing Outreach

Through the BOW outreach process, many New Westminster business and organizations were invited to the workshop, but some were unable to attend for various reasons. Outreach and follow-up with these businesses have either been completed or is on-going, with the objective to enroll these businesses in the NISP process, and have them participate in one of the upcoming NISP workshops (October 2018 or early 2019).

Twelve New Westminster businesses have indicated specific interest in a future workshop. They have been updated on the results of the June 6 workshop, the timing of the next workshop, and their contact information provided to NISP Canada in order to send a direct invitation to the October workshop.

Next Steps and Timeline

The next Business Opportunities Workshop will take place on October 5, 2018 at the Anvil Centre. New Westminster business and organizations who have not yet participated should be encouraged to register and participate. Workshop details can be found on the NISP Canada website.

NISP Canada Practitioners will continue to develop the synergies identified at the June 6th workshop. These matches can take time to develop, based on each company's availability and level of engagement.

Some synergies fall outside of the scope of the NISP Canada mandate. Within the NISP model, only matches which make business-sense, and are therefore self-sustaining business arrangements once negotiated, are pursued. However, there may be some synergies which may have community value but are not business-sense matches. In this case, the City can assess the internal support needed to progress these synergies and provide the support on a case-by-case (synergy-by-synergy) basis.

The first, pilot phase of the NISP Canada project under which this workshop took place will wrap up in March 2019. While the network will continue to grow with increasing opportunities for New Westminster businesses to benefit from local 'waste' resources, a pilot report with the metrics identified in the Results section will be available following that date.

The NISP model can build an innovative, eco-industrial network which provides important economic and environmental benefits to New Westminster. However, the synergies between industries that will provide these benefits can take months to assess, develop, and negotiate after the business opportunity workshop. Further, the future growth of the eco-industrial network requires NISP Canada's continued efforts and facilitation. Therefore, for the eco-industrial networking benefits to be achieved in the long-term, NISP Canada must be continued to be supported.

Recommendations

Given the strong alignment between the NISP model and the City of New Westminster policy goals, strategies and action items, the City should consider continuing to support NISP Canada. Within both the CEEP and draft ESAP, there are specific actions (Actions 13 and 8.4b, respectively) that seek to investigate, identify and promote eco-industrial networking in New Westminster. The NISP Canada Pilot provides an ideal opportunity to build a local eco-industrial network which benefits from the resources of the larger region. The eco-industrial network is being investigated and introduced through the NISP Canada pilot, but to be established and sustainable, continued in-kind and financial support of NISP Canada will be necessary.

The City of New Westminster should consider the following:

- Provide financial support to further NISP Canada to continue its work to develop the local eco-industrial network in New Westminster, based on the results of the pilot program.
- Provide organizational support to NISP Canada to obtain additional funding from regional, provincial and federal partners.
- Collaborate with Metro Vancouver and municipalities in the region to develop a coordinated approach to circular economy policies, including the potential development of regional principles around and a strategy for a regional circular economy.

The City of New Westminster staff should consider continuing being engaged with NISP Canada practitioners in order to:

- Identify additional local businesses that should participate in the final two pilot workshops (October 5, 2018 and early 2019) and provide direct outreach or provide the information to NISP Canada for outreach.
- Support the logistics of the October workshop (earmarked for the Anvil Centre).
- Identify non-business synergies that can add local community value in order to assess if City support is merited.
- Support the business-sense synergies being facilitated by NISP Canada on an as needed basis.
- Support the synergy between Douglas College and Ethical Phones4Good via Intelligent New West with the intention of piloting a social inclusion project using refurbished mobile phones in a specific corridor in New Westminster.
- Participate in the upcoming workshop as an attendee to incorporate City waste materials, including solid waste.

Based on the specific priorities and reporting metrics within City policy documents, it is recommended that NISP Canada should consider:

- Report on the CEEP Primary Indicators (e.g., GHG emissions reduced, energy and water savings).
- Report on organic waste diversion volumes as an indicator under the CEEP Strategy 7.3.

Conclusions

The NISP Canada network is in the process of growing and developing important synergies between businesses. The economic and environmental benefits will evolve as each unique business deal is made. For New Westminster, there are important opportunities for local businesses made within the City and across the region, but they are just in the initial steps of being realized. The results will be found in the coming months and into 2019 as the synergies come to fruition. The success and energy of the June 6th workshop, as well as the previous three Lower Mainland workshops, is an important step in the process, but it is just the first step in the true impact of the NISP process in New Westminster.

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Appendices

Appendix A: Covering Letter and Invitational Flyer for New Westminster Businesses

Appendix B: List of June 6th workshop attendees and contact information

Appendix C: June 6th workshop summary report

Appendix D: Grid-based summary report of all attendees, identified resources and matches

Appendix E: Current status of New Westminster business NISP synergies as of July 27, 2018

Note: For public access to the Appendices of this report, please contact the City of New Westminster.

Appendix A: Covering Letter and Invitational Flyer for New Westminster Businesses

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