



Indigenous and
Northern Affairs Canada

Affaires autochtones
et du Nord Canada

First Nation Waste Management



Canada

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Outline

- Overview
 - Current situation
 - INAC and Solid Waste
 - Past initiatives
- Current Facilities
 - Landfills
 - Transfer Stations
 - Dumps
- Budget 2016 Waste
 - Problem/Context/Risk/Objective
 - Building the plan – SK Approach
- Diversion/Pollution Prevention/HHW
 - Opportunities/Initiatives





Overview – Current Situation

82 First Nation Communities in Saskatchewan

- Dumps - unregulated, illegal (IRWDR)
- Open burning – Provincial enforcement
- Unmaintained landfills
- Some well-maintained and highly-functioning waste management systems

Little to no diversion programs

- Abandoned vehicles and white metals
- Recycling
- Composting
- Hazardous waste





Overview – Current Situation

- INAC provides funding to assist First Nations in planning, design, construction, operation, and decommissioning of solid waste sites.
- INAC consults with other organizations (Health Canada, Environment Canada, Tribal Councils) about solid waste management when making decisions with First Nation communities.
- INAC provides awareness and related training.
- INAC inspects and monitors permitted landfills.
- Provides assistance as program/funding allows





Overview – Past Initiatives

What INAC is doing at the Regional Level:

- 1992-1997 Environmental Issues Inventory
- 2000-2005 Environmental Capacity Development Initiative Funding Program
- 2008-2010 Solid Waste Disposal Sites Inventory
- 2009-2012 First Nations Infrastructure Fund
- 2010-2015 Lands and Environment Action Fund (Now known as LEDSP) (feasibility study, maintenance management plans, training, workshops, roundup etc..)





Overview – Challenges

- 50/50 Cost sharing between INAC and the FN (treated like any other Capital project) so has historically been a low priority.
- Since 1992, there has not been a targeted increase in funding to support First Nations communities' waste infrastructure and management needs.
- Closure and remediation of existing dumpsites included as part of project (standards).
- Resulting in significant impacts on the environment, health, safety and economic development.





Current Facilities - Landfills



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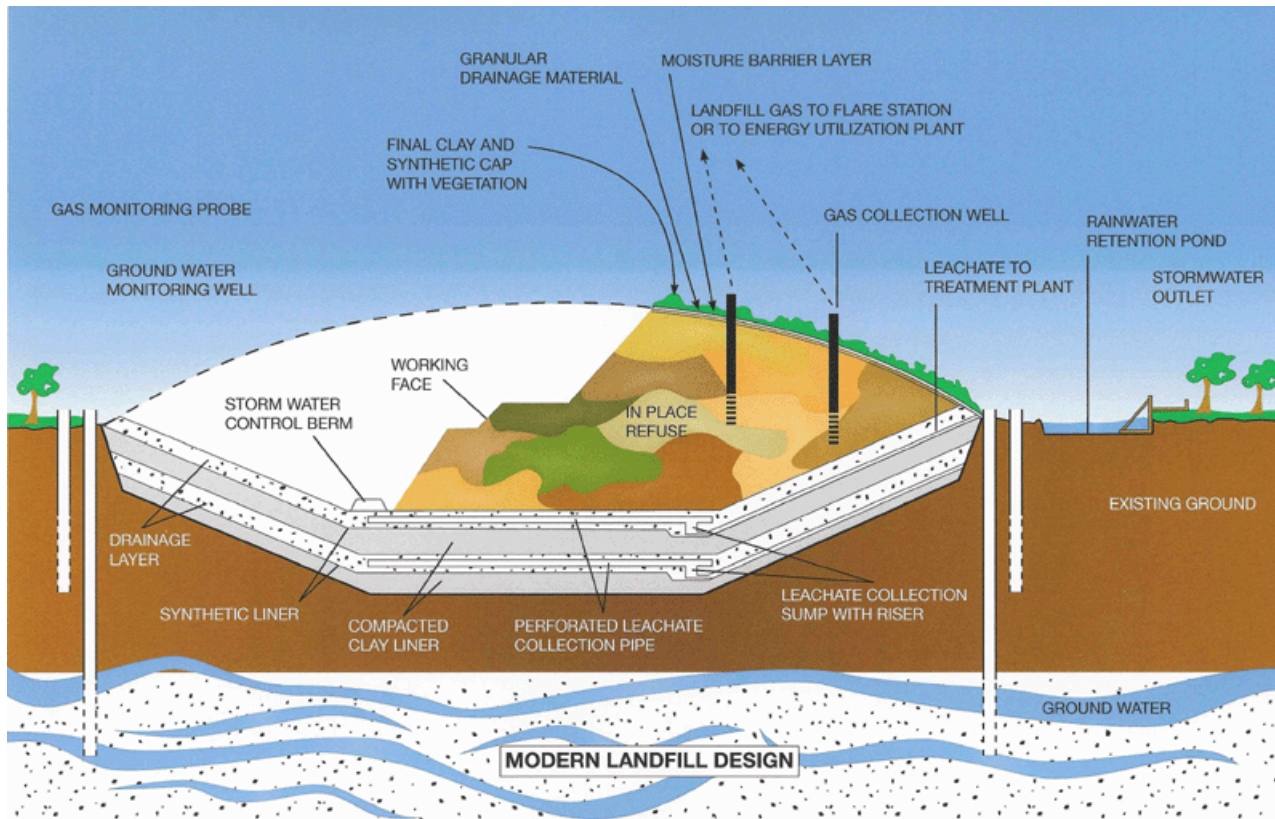
Current Facilities - Landfills

A system of interrelated excavations or mounds and their subsystems that act together to break down and stabilize wastes over time.

- Cover and compaction on monthly basis (minimum) or depending on waste production.
- No burning of solid waste.
- Separation of materials onsite (increase life expectancy).
 - Clean wood
 - White metals (appliances)
 - Tires



Current Facilities - Landfills





Current Facilities - Landfills

- **Pros**

- Increased protection of human health and the environment.
- Engineered, (design, location, ground water, soil conditions, population, volume generation etc.) all taken into consideration.
- Reduction in wind blown refuse, scavenging, potential fires.
- Reduced leachate production (covering, slope/grading, diversion trench etc.).
- Segregation of material promotes recycling, diversion etc.
- Aesthetics, dog leg approach, treed, hidden.
- Ability to limit off reserve use of facility.
- Permitted, surveyed, set aside in the ILRS
- Groundwater monitoring.



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10/26/2011



Current Facilities - Landfills

- **Cons**

- Relatively expensive to build and operate, although funded at an accelerated level.
- Requires access to heavy equipment.
- Difficult to control access without supervision.
- Land use restrictions in the future (surveyed out and set aside in ILRS) Con that it is restricted, Pro that you know where it is/was.
- Decommissioning costs (however, if properly ran most of these costs are built into the Operation and Maintenance.





07/12/2012







Current Facilities – Transfer Station

A Transfer Station is a collection point for wastes which are transferred to a distant waste recovery/disposal facility.



Current Facilities – Transfer Station



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Current Facilities – Transfer Station



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Current Facilities – Transfer Station

- **Pros**

- Lower capital costs when compared to landfill
- Engineered, (design, location, population, etc.) taken into consideration.
- Gets waste out of community, resulting in less impact to an already limited land base.
- Future land use may not be as restricted when compared to landfill.
- Does not require regular access to heavy equipment.



Current Facilities – Transfer Station

- **Cons**

- Remoteness of community increases transportation costs (feasibility).
- Possible illegal dumping without supervision.
- Some level of segregation required depending on receiving facility.
- Tipping fees (potential increases) etc.
- Outside influences have a higher impact on operations (snow, wet, fire, etc.).



Current Facilities – Transfer Station





Current Facilities – Transfer Station



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Current Facilities – Dump

- Any unregulated and or unauthorized dumping, storing, disposal of waste on reserve.
 - Dumpsite
 - Burn pits





Current Facilities – Dump

- **Pros**

- None

- **Cons**

- In violation of IRWDR.
- High likelihood of contamination onsite (no prohibited wastes).
- No engineered design (i.e., location, soil type, water table).
- Production of carcinogenic compounds through burning.
- No access controls, off reserve dumping likely.
- Very restricted future land use (although no records).
- No monitoring.





Current Facilities – Dump



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Current Facilities – Dump



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Current Facilities – Dump



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Current Facilities – Dump



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Current Facilities – Dump





Budget 2016 Investments in Waste Management on Reserve

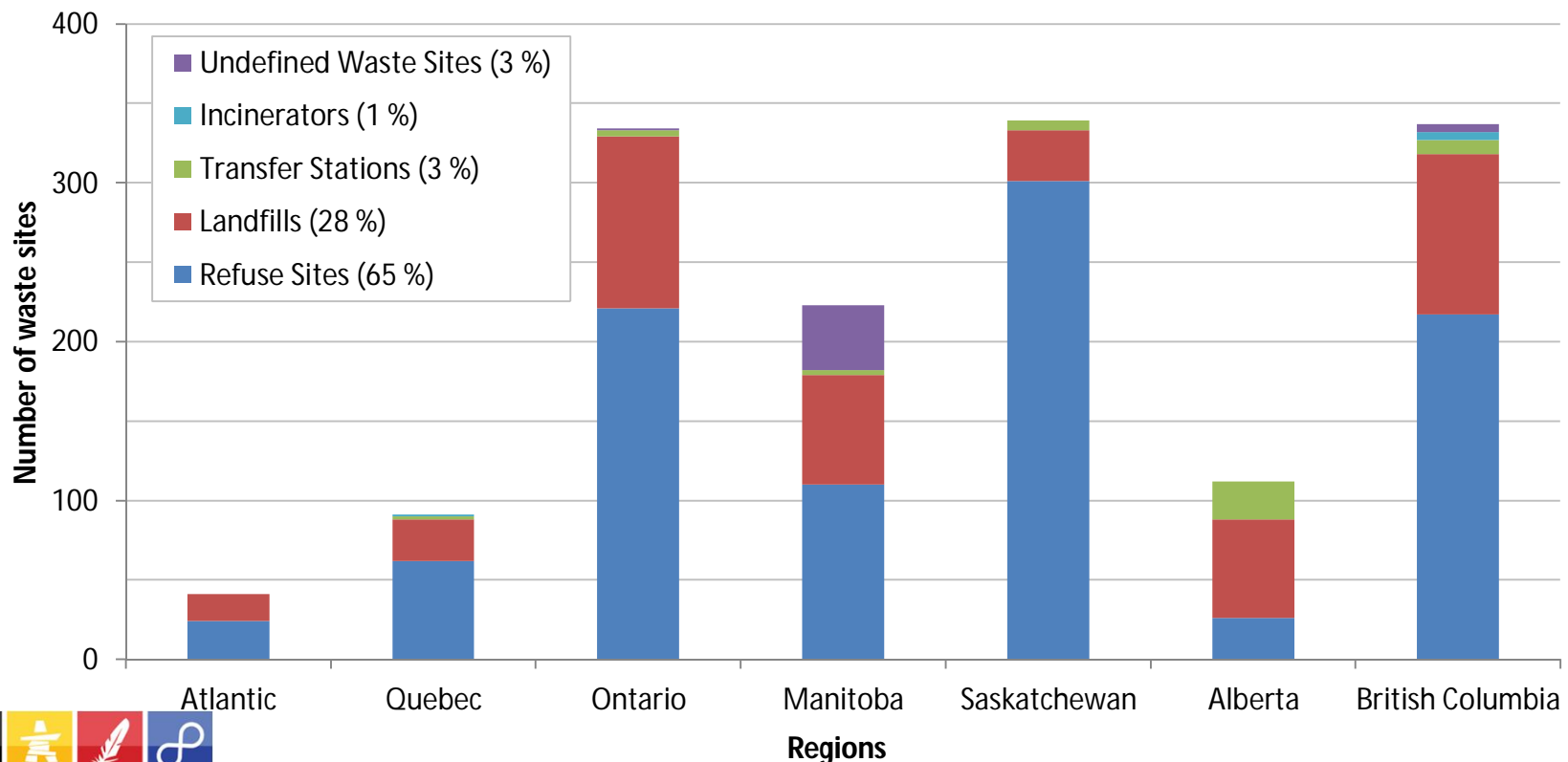


- Budget 2016 supports efforts to improve how waste is managed on reserve through:
 - A proposed investment of \$409 million over five years, starting in 2016–17
 - Committed funding of \$15.4 million in 2016-2017 and \$96.2 million in 2017-2018



Budget 2016 - Snapshot of Data

- An inventory of waste disposal sites on reserve lands and off reserve sites used by First Nations and funded by INAC has been developed by consolidating existing data.
- **Key findings:**
 - 1482 waste disposal sites nationally. Refuse sites are the most numerous waste site type, representing two-thirds of all sites. 13% of sites contain hazardous waste;
 - Most (89%) sites are situated on reserve. However, some (7%) are found on provincial lands off reserve and for others (4%) the land tenure is unknown;





Budget 2016 - Snapshot of Data

Saskatchewan's Waste Management – Current State

- 328 Operational Landfills
- 155 Transfer Stations
- 15 Industrial Landfills
- 356 Closed Landfills

Saskatchewan has more landfills per capita than any other Canadian province, however, the trend is moving towards more regionalization (Montana).





Budget 2016 - The Problem

- The existing approach to waste management on reserve contributes to significant risks to human health and safety and the environment, squandered economic opportunities, and the perpetuation of a negative investment environment on First Nations lands.
- Several factors contribute to the problem, including:
 - **Legal Regime:** There is a significant legal and regulatory gap as well as significant liabilities; no compliance and enforcement (no standards) of the existing outdated and ineffective regulations (inadequate fine and penalty regime - maximum \$100 fine/3 months in jail);
 - **Unmanaged Dumping:** Widespread and unmonitored illegal dumping;
 - **Nature of Waste:** The increasingly hazardous nature of waste, implying increasing risks to human health and safety;
 - **Population Increase:** Increasing on reserve populations resulting in more pressure on waste management; and,
 - **Funding Issues:** Only minimal amounts of community O & M funding are typically used for waste management. There is no funding devoted to compliance and enforcement.





Budget 2016 - Context

- There are dramatic differences between how waste is managed on and off reserve:
 - **Legal Regime:**
 - **Federal Laws:** Federal environmental laws apply on reserve (e.g. The *Canadian Environmental Protection Act* and *Fisheries Act*) but these laws are designed to control toxic chemicals and major threats to the environment, not waste sites, and are not preventative; meant to deal with serious issues after they arise.
 - **Local Regime:** There is effectively no legal regime in force on reserve that mirrors what exists off reserve. This includes no legal requirements around: standards; fines/penalties; training/operator qualifications; planning and construction; operations, monitoring/enforcement; and waste site closures.
 - **Illegal Dumping:** Unlike off reserve where illegal dumping is often monitored and vigorously addressed, there is no monitoring on reserve. The magnitude of this issue (e.g. number of sites, location, and types of waste), is unknown.
 - **Waste Disposal:**
 - **Modern Approaches:** Off reserve many Canadians take for granted recycling, special treatment of hazardous waste, and even targeted culling of selected waste for profit (e.g. e-waste); the modern approach to waste is almost entirely absent on reserve.
 - **Disposal Activities:** All types of waste are being put into waste disposal assets on reserve, regardless of level of risk to human health and safety and the environment. Some communities still burn waste, which has been illegal off reserve for decades.
- **In spite of the best of efforts on the part of First Nations and INAC, waste management on reserve is seriously deficient, with significant inherent risks.**





Budget 2016 - Risk

Improving waste management on reserve will have a net positive impact in a number of areas:

Human Health and Safety:

- Ensuring the proper disposal of waste both hazardous and domestic will decrease risks to human health and safety on reserve.

Environmental:

- Decreased environmental contamination and pollution.
- Increased remediation of decommissioned sites.
- Expanded stewardship and recycling opportunities.

Economic Development:

- Encourage innovation and partnerships to enhance efficiencies.
- Create economies of scale through region management systems.

Social:

- Bring First Nations, stakeholders, and government together to discuss areas of joint concern.
- Increase awareness and change behaviors towards waste management.
- Build regional systems through engagement, partnership, and sharing.



Budget 2016 - Objective and Strategy

- **Objective:** First Nations on reserve enjoy comparable standards for waste management as Canadians off reserve.
- **Strategy:**
 - **1. Divert Waste Off Reserve:** To the degree practicable, waste should be moved off reserve consistent with modern waste practices off reserve.
 - **2. Forging Stronger Partnerships:** Partnerships with Aboriginal, municipal, regional and provincial governments and organizations like the Federation of Canadian Municipalities, to reduce landfills on reserve through waste diversion (waste transfer stations), encourage cooperative management, monitoring and enforcement, and explore potential for infrastructure cost efficiencies through shared functions/improved municipal services.
 - **3. Investing in More Robust and Effective Waste Management Systems Comparable to Off Reserve:** Improve waste management on reserve through better program alignment , while addressing serious gaps and deficiencies in existing waste management systems and funding. Investments should target improved land use planning, and better design, operation and decommissioning of waste disposal assets with the overall result being a reduction in the number of new contaminated sites.
 - **4. Legal Regime:** Establish a modern legal regime, based on commonly understood and enforced standards, with adequate monitoring and enforcement.
 - **5. High Risk Sites:** Prioritize remediation of high risk and illegal waste sites.





Budget 2016 - Long Term Vision

- Healthy communities have modern and environmentally sustainable solid waste management systems that:
 - Reduce environmental and human health and safety risks
 - Contribute to sustainable economic development
- Support First Nations to move along continuum of improved waste management
- Provide sufficient, long-term funding for the operation of waste management systems
- Transparent, predictable regulatory regime





Year 1 Funding Allocations 2016-2017

| Region | Critical waste projects | Planning Studies + M TSA | Needs assess. | Awareness, capacity building & training | Total |
|------------------|-------------------------|--------------------------|------------------|---|---------------------|
| Alberta | \$630,000 | \$1,065,000 | \$100,000 | \$200,000 | \$1,995,000 |
| Atlantic | \$115,000 | \$220,000 | \$100,000 | \$200,000 | \$635,000 |
| British Columbia | \$2,000,000 | \$475,000 | \$100,000 | \$200,000 | \$2,775,000 |
| Manitoba | \$424,984 | \$1,685,000 | \$100,000 | \$200,000 | \$2,409,984 |
| Ontario | \$889,000 | \$787,423 | \$200,000 | \$200,000 | \$2,076,423 |
| Quebec | \$1,780,000 | \$442,850 | \$125,000 | \$200,000 | \$2,547,850 |
| Sask. | \$460,000 | \$635,000 | \$100,000 | \$200,000 | \$1,395,000 |
| Yukon | \$1,385,000 | \$50,000 | \$50,000 | \$50,000 | \$1,535,000 |
| Total | \$7,223,984 | \$5,500,273 | \$875,000 | \$1,450,000 | \$15,369,257 |

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Budget 2016 - Eligible Components

1. Planning

- Land use and waste management plans
- Feasibility and design studies
- Environmental Investigations (e.g., groundwater)
- Waste site closure plans

2. Capacity and Training

- Training of waste management operators
- First Nation-led tools and resources
- Waste coordination
- Education

Bridge River Indian Band Recycling Guide

Rinse Containers and Remove Lids, Keep Paper Dry

Questions? Call Claude Terry, Maintenance at 250-256-7423 ext 231





Budget 2016 - Eligible Components

3. Programs and Partnerships

- Facilitation of Municipal Type Service Agreements (MTSA).
Canadian Federation of Municipalities <http://www.fcm.ca/home.htm> ;
- Diversion programs (recycling, composting, hazardous waste); and
- Seed funding for innovative waste partnerships and programs with First Nation organizations, industry associations, and others.

4. Infrastructure

- Landfill sites in remote and isolated communities or regional landfill;
- Transfer stations; and
- Decommissioning of refuse sites and legacy landfill.

5. Operations and maintenance

- Landfill & transfer stations operation, including equipment; and
- MTSA implementation





Potential Community Roadmap

Assess waste stream and develop waste management plan



Landfill construction or improvements to existing landfill (isolated and remote)

Negotiate Municipal Type Service Agreement



Construct transfer station, if required



Training
Develop diversion programs
- Recycling
- Composting
- Hazardous Waste
Clean-up/decommission refuse and waste sites



Education: elders, families, youth, schools, industry

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Budget 2016 – Saskatchewan 2016-2017

1. Planning

- Completed 13 Solid Waste Feasibility Studies.
- 6 First Nations moved to the design stage.

2. Capacity and Training

- Partnered with File Hill Qu'Appelle Tribal Council (FHQ) and the Solid Waste Association of North America (SWANA) to deliver two Transfer Station Operators courses (Regina and Saskatoon) with over 50 people taking the training.
- Sent Tribal Council Representative to SWANA workshop/seminars.

3. Programs and Partnerships

- Facilitation of Municipal Type Service Agreements (MTSA), FCM working with two communities.
- Diversion programs – 12 Household Hazardous Waste Roundup Days.





Budget 2016 – Saskatchewan 2016-2017

4. Infrastructure (Items on Capital Plan)

- Temporary replacement cell Montreal Lake.
- Temporary cell Deschambault.
- Transfer Station upgrades.





Budget 2016 – Saskatchewan 2017-2018 (Draft)

1. Planning

- Continue to solicit and support the development of Land Use Plans, Waste Management Plans, and Feasibility and Design studies.
- Move as many First Nations as possible from the Feasibility to the Design stage as possible (13 in 2016).
- Initiate the assessment of waste site on First Nations that are transitioning to an alternative method of solid waste disposal.

2. Capacity and Training

- Formal SWANA training on an ad hoc/as requested basis.
- First Nation-led tools and resources.
- Education.





Budget 2016 – Saskatchewan 2017-2018

3. Programs and Partnerships

- Diversion programs – Expand on the Household Hazardous Waste Roundup Days (target 25) including northern and remote communities.
- Partnering with regional waste authorities to the greatest extent possible.

4. Infrastructure

- Construction of 5 transfer stations.
- Decommissioning of refuse sites and legacy landfills.

5. Operations and maintenance

- Implementation of the new MTSA funding formula at existing and new transfer station coming online.



Budget 2016 - Measuring Success

- Baseline data being collected regionally to identify needs, gaps and priorities and inform performance evaluation – “Needs Assessment”
- **Indicators**
 - Number of First Nations with:
 - Improved infrastructure
 - Improved waste programming
 - Training
 - Increased diversion activities
 - Number of First Nations with adequate waste management systems





Budget 2016 - Road to Success

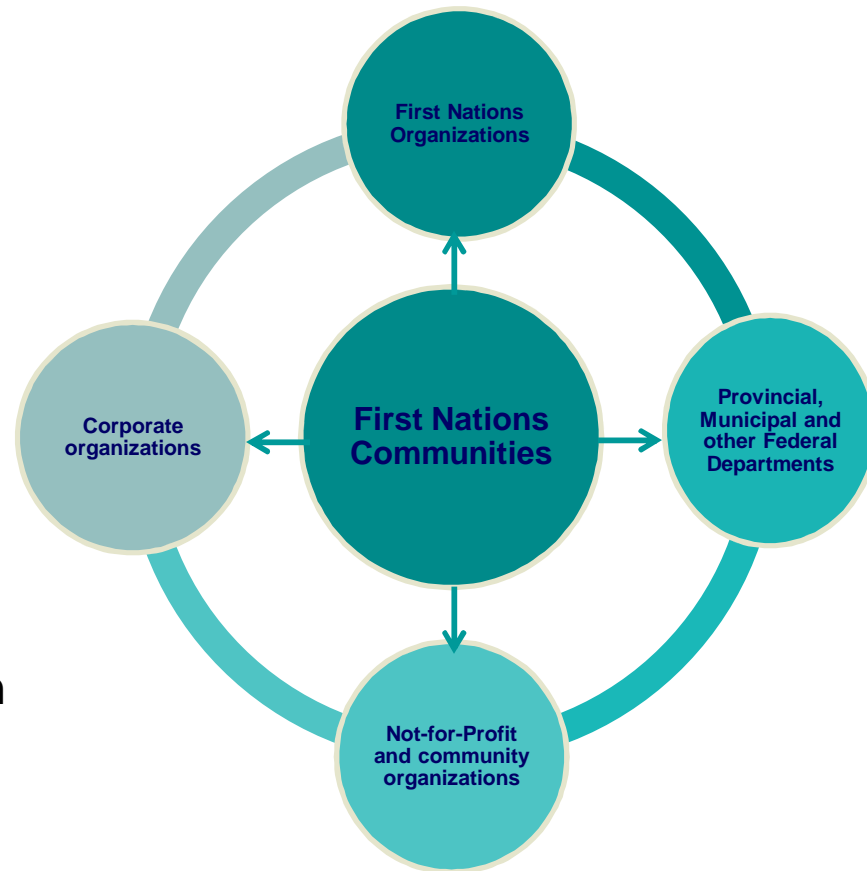
- Successful implementation can only be done through a **meaningful engagement process**.
 - FNWMI has provided funding to support the regional engagement with First Nations communities and partners to assess their needs and key priorities.
 - A National Advisory Committee is being established to provide high-level advice and guidance.
 - Tribal Councils, technical bodies and other First Nation organizations (FSIN) will also support to individual First Nations:
 - Education, tool and capacity development; and
 - Aggregate services such as coordinating diversion of household hazardous waste, end-of-life vehicles, white goods, etc.





Collaboration with Partners

- INAC is engaging with key partners to ensure the implementation meets the unique needs of First Nations communities.
- This engagement process will include:
 - Communications through the website and social media;
 - Sharing of outreach material,
 - Collaboration with the Federation of Canadian Municipalities.





Waste Diversion/Pollution Prevention/HHW

Source Reduction – Minimize the amount of material before it reaches the landfill/transfer station (30% of waste in an average landfill is paper/cardboard).

Potential Benefits:

- Reduced waste collection (frequency can save money)
- Decreased environmental impacts.
- Extended operation of existing facilities.
- Can be done at a community or individual level.





Waste Diversion/Pollution Prevention/HHW - Paper

Multi Material Stewardship Western (MMSW) – Developed to program manage the Household Packaging and Paper Stewardship Program Regulations.

- Any First Nation providing access to waste paper and packaging recycling is eligible for rebate.
- Current payment of \$11.75 per household.
- 76% of Saskatchewan Households participate in program.
- 2 First Nations currently in program.
- Potential boost in Transfer Station O & M funding





Waste Diversion/Pollution Prevention/HHW - Tires



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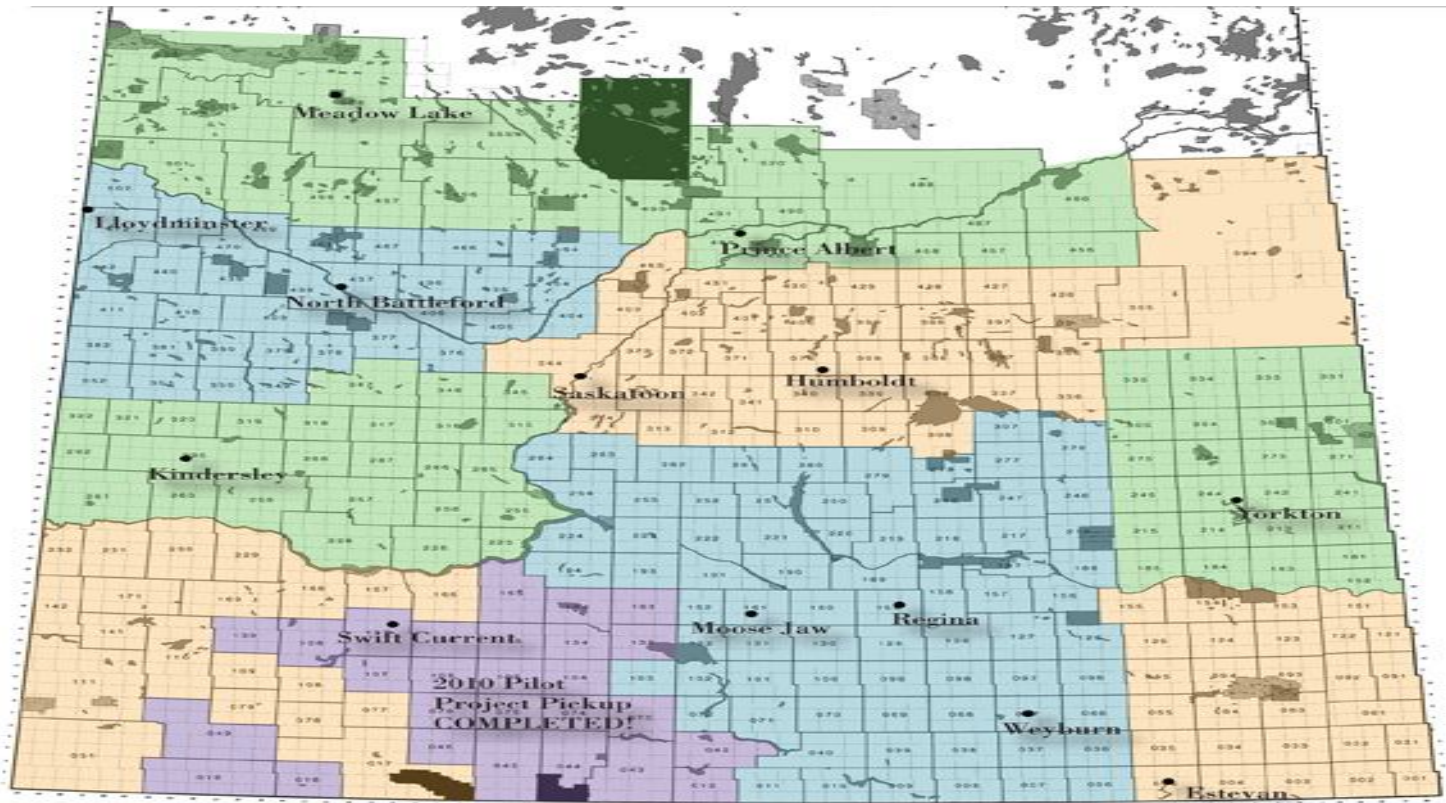
Waste Diversion/Pollution Prevention/HHW - Tires

- Over one million scrap tires are generated in Saskatchewan per year.
- Tires break down very slowly, once they are on your property, or in your landfill they are generally there to stay.
- Environmental concerns do to longevity, mosquito breeding grounds, fire etc.
- Are recyclable, and you pay a tire recycle fee on any new tires purchased in Saskatchewan.
- Saskatchewan Scrap Tire Corporation (SSTC) is currently running a recycle program “Black Gold” which is a one time cleanup of tires on private lands (one drop off point per RM)
<http://www.scraptire.sk.ca/black-gold-rush/>





See - <http://www.scraptire.sk.ca/black-gold-rush/>



BLACK GOLD RUSH!
— SCRAP TIRE CLEAN UP —

- 2010 Pilot Project - COMPLETED
- 2012
- 2013
- 2014

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Waste Diversion/Pollution Prevention/HHW - Halocarbons



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Waste Diversion/Pollution Prevention/HHW - Halocarbons

- Federal Halocarbon Regulations 2003 (FHR) apply on reserve.
- What is a “halocarbon”? The term refers to the most commonly known ozone depleting substances (ODS), examples include Chlorofluorocarbons (CFCs) usually found in refrigeration, air conditioning, and fire extinguishing systems.
- How does this apply at landfills? Before dismantling, destroying, or decommissioning any ODS containing system (refrigerators, freezers, air conditioners) a certified person must recover the halocarbons into an appropriate container.
- You must affix on the system a notice containing the information prescribed in item 1 of Scheduled 2 of the Regulations. This notice must not be removed until the system has reached its final destination for destruction.
- For more information contact Environment Canada at (819) 997-1640 or <http://www.ec.gc.ca/ozone>.

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Waste Diversion/Pollution Prevention/HHW - Electronics



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Waste Diversion/Pollution Prevention/HHW - Electronics

- Recycling program available through the Saskatchewan Waste Electronic Equipment Program (SWEEP).
- To date the program has collected over 13,000,000 pounds of electronics, diverting millions of pounds from landfills.
- This service is free, as with tires an environmental fee is charged at time of purchase.
- Electronics are accepted at all Sarcen facilities in the Province, currently (71).
- For more information contact:
<http://www.sweepit.ca/> or 1-888-350-6555
- Can potentially bundle with HHW days.





Waste Diversion/Pollution Prevention/HHW – Used Oil

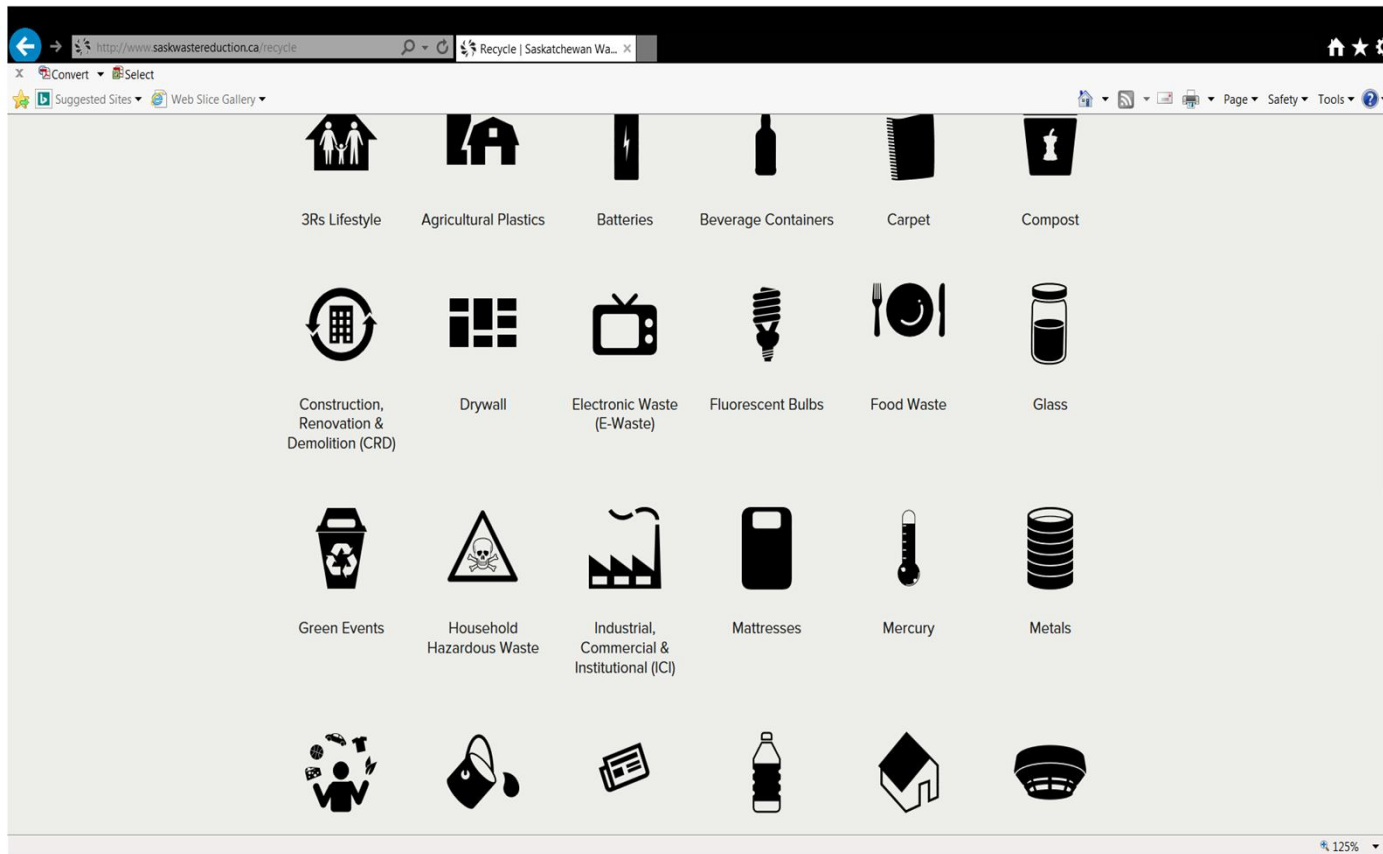
- Hydrocarbon is the #1 source of contaminated sites on reserve.
- Used oil made up the largest component of material collected during the HHW Day roundups.
- Over 200 collection facilities/drop off sites within the province.
- Return incentives/cost saving over HHW route.





Waste Diversion/Pollution Prevention/HHW

Saskatchewan Waste Reduction Council
(<http://www.saskwastereduction.ca/>)



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Waste Diversion/Pollution Prevention - HHW

- Program delivered by GFL Environmental, specialist in the removal, recycle or disposal of hazardous materials.
- 1 in 2015, 11 in 2016, targeting 25 in 2017.
- No cost to the community.
- Reduction in potential contaminated sites.





Waste Diversion/Pollution Prevention - HHW

- **Accepted Materials**
- **Acid:** battery acid, toilet bowl cleaner, sulphuric acid, hydrochloric acid
- **Adhesives:** contact cement, resin, glue, sealer, caulking
- **Aerosols:** hair spray, insect repellent, lubricant spray, furniture cleaner
- **Automotive:** used oil, oil filters, antifreeze, carburetor cleaner, batteries, fuel, windshield wiper solution, transmission fluid, brake fluid, empty oil containers & pails
- **Batteries:** alkali, dry cell, NiCad, lithium, lead-acid (automotive)
- **Cleaners:** floor, carpet, clothing, oven, glass, car wax, disinfectant, aluminum cleaner
- **Cylinders:** propane (barbecue 20 lb. or camp 1 lb.), helium, oxygen, acetylene, fire extinguishers
- **Corrosives:** drain cleaner, engine degreaser, ammonia, battery acid, sulfuric acid
- **Fuels:** gasoline, diesel, kerosene, oil/gas mixture
- **Light Bulbs and Ballasts:** fluorescent light ballasts (with or without PCBs), light bulbs
- **Mercury:** mercury, mercury thermometers
- **Oxidizing Chemicals:** chlorine, bleach, pool chemicals, fertilizer, hydrogen peroxide
- **Paint** that is accepted through the Saskatchewan Paint Recycling Program
- **Pesticides & Fertilizers:** pesticides, herbicides, insecticides, rodenticides, fertilizer
- **Pharmaceuticals:** prescription drugs, medicines (no needles, sharps, or biological waste)
- **Solvents:** varsol, paint thinner, naphtha, acetone, toluene, xylene, alcohol, benzene
- **Other Materials:** asbestos (must be triple contained), asphalt & roofing tar, detergents, photographic chemicals, pigments, dyes, hair colour, nail polish & remover, lead, mothballs, pet supplies, phenol, pine oil, scouring powder, spot remover, septic tank chemicals, shoe polish, wood preservatives
- **Prohibited Materials**
- Materials not listed above
- **Class 1 (Explosives):** including ammunition, explosives, guns & weapons
- **Class 2 (Compressed Gases):** other than propane, helium, oxygen, acetylene cylinders, fire extinguishers, aerosols
- **Class 7 (Radioactive):** including ionization chamber-type smoke detectors
- Biologically hazardous materials including sharps and needles
- PCB materials other than fluorescent light ballasts
- Used tires, automotive and bicycle
- Unknown chemicals
-



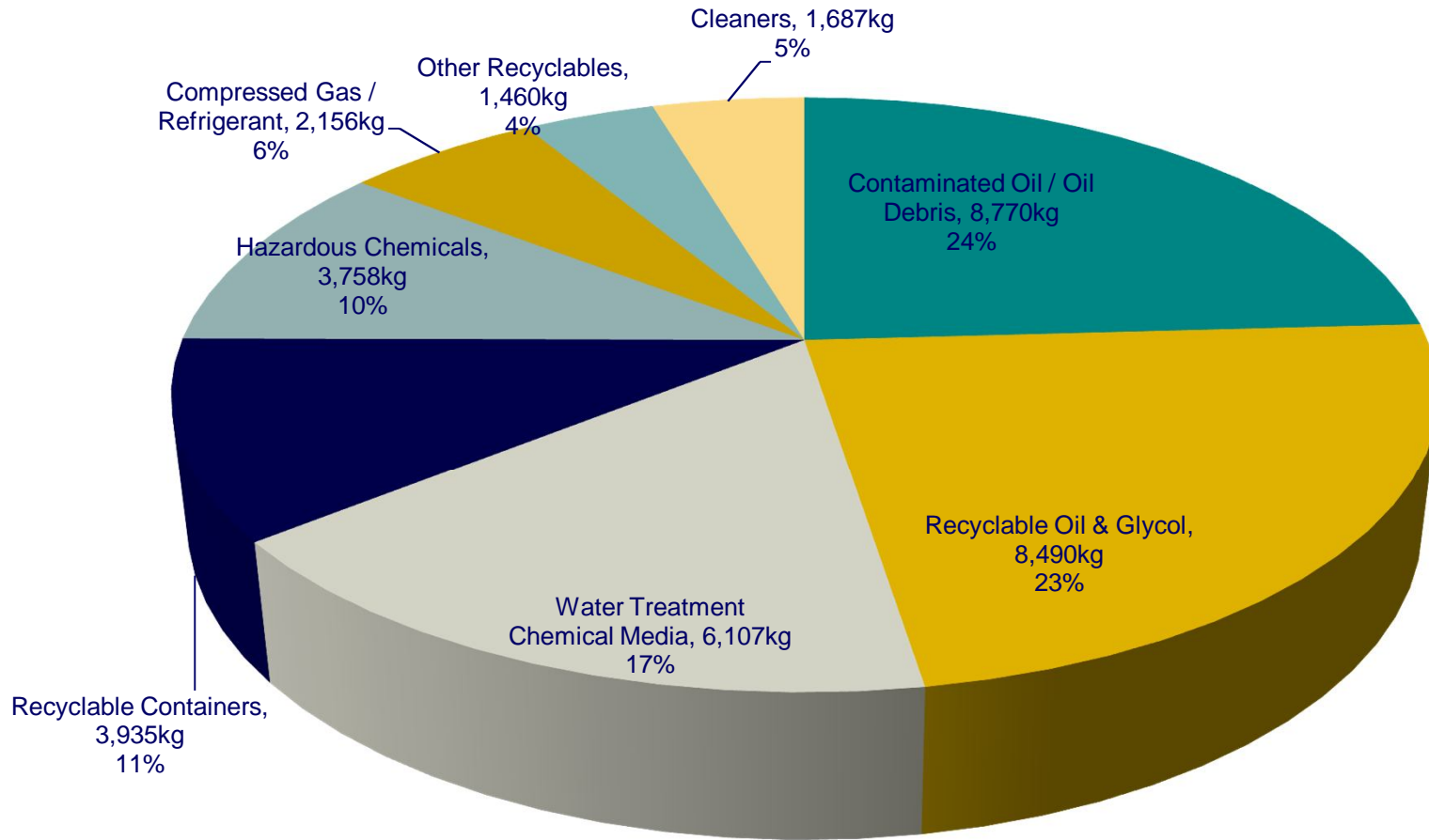
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• Sponsored by Indigenous and Northern Development Canada & Envirotec Services Inc.





2016 First Nations Waste Roundup 38,446 Kg Diverted From Landfills



* Other Recyclables include light tubes and bulbs, batteries, electronics and oil filters





Budget 2016 - How to apply

- Ensure your waste needs are included in your community's First Nations Infrastructure Investment Plan (FNIIP)
- Contact your Regional INAC Environment Officer with questions

Trevor Linford

(306) 501-2919

Trevor.Linford@aandc.gc.ca

BEFORE



AFTER



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Questions



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