

Open=Safe: Real-Time Radiation Monitoring for Canada

Executive Summary

Safecast's **Open=Safe** project seeks CAD 750,000 in funding to establish a community-based, real-time radiation monitoring network around Canada's nuclear facilities, with initial focus on the area surrounding the Pickering Power Plant in Ontario. Over a 24-month period, Safecast will conduct hands-on workshops in selected communities, where up to 10 participants per session will learn to build and operate open-source bGeigie Zen radiation sensors. These detectors will be deployed for real-time monitoring, with data streamed to an open-access platform. The project aims to empower communities, enhance transparency in environmental monitoring, and ensure public safety by providing independent, real-time radiation data.

1. Project Background and Rationale

Canada has long maintained a strong commitment to nuclear safety, yet community concerns persist regarding the potential environmental impact of nuclear facilities. With the success of Safecast's global workshops and its proven track record in citizen-science radiation monitoring, **Open=Safe** intends to extend this model to Canada. By equipping local communities with the knowledge and tools to monitor radiation levels in real-time, the project will:

- **Empower Local Communities:** Enable citizens to take an active role in monitoring environmental safety around nuclear facilities.
- **Enhance Transparency:** Provide independent, open-access radiation data, fostering trust between the public, regulatory agencies, and the nuclear industry.
- **Support Emergency Preparedness:** Establish a real-time data network that can aid in timely decision-making in case of a radiation incident.

2. Objectives

1. **Capacity Building:** Train 200 participants in open-source radiation monitoring near nuclear facilities in their communities .
2. **Hardware Deployment:** Assemble and deploy 200 bGeigie Zen radiation detectors.
3. **Data Generation:** Collect and stream at least 15 million data points to the Safecast open-data platform.
4. **Community Engagement:** Form five regional monitoring groups to ensure, sustained radiation surveillance.

5. **Transparency & Safety:** Publish all data and workshop materials under open licenses to support public trust and safety.

3. Methodology and Work Plan

Work Packages

WP1: Coordination & Management

- **Activities:** Project planning, progress monitoring, and financial management.
- **Deliverables:** Inception report, quarterly progress updates, and final project report.
- **Timeline:** Months 1–24

WP2: Curriculum and Workshop Development

- **Activities:** Adapt Safecast's workshop materials for the Canadian context, including adjustments for local language (English and French) and regulatory standards.
- **Deliverables:** Workshop manuals, instructional videos, and translated materials.
- **Timeline:** Months 1–4

WP3: Workshop Implementation and Hardware Assembly

- **Activities:**
 - Host community workshops (maximum 10 participants per session).
 - Provide hands-on training in assembling bGeigie Zen kits.
 - Train participants on data collection and interpretation.
- **Deliverables:** 20 workshops completed, assembled detector kits, and participant feedback reports.
- **Timeline:** Months 5–22

WP4: Data Integration and Quality Assurance

- **Activities:**
 - Install data collection software and establish a secure data pipeline.
 - Validate and integrate radiation data on the Safecast platform in real-time.
- **Deliverables:** Interactive maps, open-access dataset releases, and a final data analysis report.
- **Timeline:** Months 6–24

WP5: Dissemination and Community Outreach

- **Activities:**
 - Engage with local media and community leaders.
 - Organise webinars and public forums.
 - Establish permanent regional monitoring groups.

- **Deliverables:** Outreach materials, recorded webinars, policy briefs, and community group charters.
- **Timeline:** Months 12–24

4. Project Management and Implementation

- **Project Lead:** Safecast Canada, operating in collaboration with local partners in Ontario.
- **Instructors:** A team of three experienced Safecast trainers will conduct workshops and support on-site training.
- **Local Partnerships:** Collaboration with community centres, local universities, and makerspaces will provide workshop venues and assembly tools.
- **Quality Assurance:** All hardware kits will be pre-tested before deployment. Data validation protocols will be in place to ensure accuracy and reliability.

5. Budget and Justification

Cost Category	Unit Cost (CAD)	Quantity	Total (CAD)
Personnel			400,000
– Project Manager	90,000/year	2 years	180,000
– Instructors (3 × 20 days)	550/day	60 instructor-days	33,000
– Data Analyst	60,000/year	1 year	60,000
– Administrative Support	40,000/year	2 years	40,000
Travel & Subsistence			100,000
– Instructor travel	500/trip	60 trips	30,000
– Accommodation & per diems	200/day	90 days	70,000
Equipment & Materials			150,000
– BGeigie Zen kits	450/kit	200 kits	90,000
– Electronic components	100/kit	200 kits	20,000
– Workshop consumables	150/workshop	20 workshops	3,000
– Shipping & logistics	—	—	27,000
Dissemination & Outreach			100,000
– Translation & printing	—	—	10,000
– Webinar and event costs	—	—	30,000
– Policy briefs & public forums	—	—	30,000
Total			CAD 750,000

6. Expected Impact and Sustainability

- **Immediate Impact:** Train 200 citizen scientists and deploy 200 radiation monitoring devices, creating a robust, real-time data network in areas surrounding key nuclear facilities.
- **Long-Term Impact:** Establish enduring regional monitoring groups that will continue independent radiation surveillance, further building public confidence in nuclear safety.
- **Sustainability:**
 - **Data Continuity:** Continuous integration of data into an open-access platform ensures ongoing public accessibility and transparency.
 - **Community Empowerment:** Local groups will be provided with ongoing technical support and training resources to maintain and expand monitoring activities.
 - **Policy Engagement:** Regular dissemination of data and findings will facilitate informed dialogue between communities, regulators, and the nuclear industry.

7. Dissemination and Exploitation

- **Open-Access Data:** All collected data and workshop materials will be published on line under open licenses (e.g., CC-BY) to ensure maximum transparency.
- **Academic and Public Outreach:** Peer-reviewed articles, conference presentations, and open webinars will be used to disseminate results.
- **Governmental Engagement:** Policy briefs will be developed for federal and provincial agencies, ensuring that the project informs national safety protocols and public policy.
- **Media Campaign:** A targeted media campaign will highlight community success stories and enhance public understanding of nuclear safety issues.

8. Conclusion

Open=Safe leverages Safecast's global expertise to empower Canadian communities with the knowledge and tools to monitor radiation levels in real-time around critical nuclear facilities. With a focus on transparency, public safety, and community engagement, the project aims to create a sustainable, citizen-driven network that enhances nuclear safety and environmental monitoring across Canada. We respectfully request CAD 750,000 to implement this vital initiative and build a safer, more informed future for Canadian communities.