

forward momentum

sustainability report 2014



The theme *Forward Momentum* best characterizes our progress on our sustainability journey. In previous years, we identified our focus areas and collected baseline data, gathering momentum along the way.

In our third year of reporting, we are able to use that momentum to propel us forward to achieve some significant goals; including attaining ISO 14001 certification and raising the profile of sustainability in our project work. In this report, look for arrows ➤ highlighting the activities that moved us forward in 2014.

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Northern Minerals Browns Range  
Western Australia



# message from the president



I am pleased to present our 2014 Sustainability Report. We chose Forward Momentum as our theme for the report, which is a fitting description of our progress in economic, environmental and social aspects of our business. It has been three years

since we launched our Sustainability Initiative and, as with any new program, it takes time to refine our approach. Shifting our point of view with an eye to sustainability allows us to identify the things we already do well, and to look for opportunities to do better. I have been pleased with our progress and it is good to see us gain momentum.

Our corporate service groups and committees led the charge on several initiatives over the last year, which allowed us to embed a stronger system of governance in our health & safety programs, ethics training, donations programs and environmental initiatives.

While we continue to take steps to reduce our environmental footprint in our operations, it is in our project work where we have the opportunity to make a big positive impact. Last year, we implemented new methods for our technical teams to share sustainable aspects of our projects through our intranet, project sheets and technical sessions which you will read more about in this report.

Momentum in the resource sector slowed in 2014 due to the impacts of fluctuating commodity prices. This makes our work even more important so that owners, governments, regulators and stakeholders can make informed choices about resource projects based on quality technical and practical advice. While the resource sector was slowing, our work in clean energy projects, principally hydroelectric work, has grown significantly and I am proud of our contribution to the safe and economical design of a number of major hydroelectric facilities.

A significant part of our business is the responsible management of mine tailings. The tailings dam breach at Mount Polley was a stark reminder of how important our work is in designing and helping to construct sound tailings storage facilities, which can eventually be closed in a sustainable manner.

The ability of our staff to advance our sustainable initiatives in light of the challenges facing our industry over the last year is commendable. We will continue to look for opportunities to keep moving forward in all aspects to benefit our clients, our staff and our communities.

Len M. Murray, P.Eng.  
President & CEO

# about the report

Klohn Crippen Berger's (KCB's) report is intended for our communities of interest: clients, employees, government agencies, subcontractors and the communities where we operate. We use the Global Reporting Initiative (G4) as our framework for this report.

## Scope and Boundary

The scope of this report includes the ten offices in which we operate in Canada, Australia, the United Kingdom and Peru. When reporting on G4 Indicators, the information does not include KCB's field offices. Where material, we provide information on the application of sustainable practices in our project work. Data reported for our in-office environmental initiatives pertain to the six offices now certified under ISO 14001:

- Vancouver
- Calgary
- Edmonton
- Sudbury
- Brisbane
- Lima

## Defining Report Content (materiality)

Following our reports in 2012 and 2013, the material topics that we report on fall under two key focus areas: Our Project Work and Our Operations. Each focus area includes a series of topics with which we report on through quantitative and qualitative aspects.

## Our Focus Areas

**Our Project Work** – Our work with our clients is where we feel KCB has the opportunity to make the biggest impact on sustainability. As the GRI does not include indicators that are relevant to our project work, we developed key sustainable project attributes, which we report on through project case studies. The attributes fall under four main categories:

- Environmental
- Social
- Innovation
- Design

**Our Operations** – We are committed to strong corporate governance and a culture of social responsibility. We report on these operational aspects under the following categories:

- Corporate Governance
- Health and Safety
- Our People
- Our Community
- Our Offices

## Data

**Our Offices** – In previous reports our in-office environmental data covered our two largest offices in Vancouver, British Columbia and Calgary, Alberta. This year, we expand our report to include the six locations now certified under ISO 14001.

**Our People / Our Community** – Any data reported under Our People and Our Community sections pertains to our ten offices.

## Reporting Cycle

KCB launched its sustainability initiative in 2012 and published the inaugural report in 2013. We continue to publish an annual report issued in June of each year. Sustainability data in this report is for the calendar year ended December 31, 2014. Material information up to the report publication date is also included. Where available, we include comparative historical data to demonstrate trends.

## Questions?

Contact Kathy Fowler, Manager, Marketing & Sustainability  
kfowler@klohn.com / 604.251.8583





Bassano Dam, Alberta

## Materiality

We manage our firm to achieve economic viability while operating as a good corporate citizen making decisions to benefit our clients, our people, our community and our planet. In defining what is important to us (“materiality”), we begin with our Company Charter. The Charter represents our mission, vision, values, and guides our daily work. Our process is guided by the GRI G4 protocols and the ISO 9001, ISO 14001 and OHSAS 18001 standards for quality, environment and occupational health and safety respectively.



We identify issues and opportunities by engaging our stakeholders through a variety of methods. These include:

### EMPLOYEES

- Quarterly meetings
- Employee surveys
- On-line forums, news feeds, feedback cards and other communication mechanisms

### CLIENTS

- Client feedback
- Requirements found in requests for proposals
- Pre-qualification questionnaires
- Project planning and reporting
- Sustainability, CSR and Annual Reports

### INDUSTRY ASSOCIATIONS

- Membership and participation in industry associations
- Representation on boards and committees

### COMMUNITIES

- On-going engagement with communities through project work, volunteering and sponsorships

### SHAREHOLDERS

- KCB is employee-owned; engagement with shareholders is on-going
- Shareholder meetings are held twice each year



# performance summary



In an effort to improve transparency in communicating our sustainability goals we have added a performance summary to this year's report. This summary is intended to share our progress in meeting objectives set for the reporting cycle.

## our people

2014 GOALS	ACHIEVED	NOT ACHIEVED	ON TRACK	NOTES	2015 GOALS
Implement mandatory Code of Conduct & Ethics Training	●			Training program developed in 2014	Training completed in April 2015 for existing staff
Provide and track focused learning and development opportunities			●	Tracking system improved and focused opportunities identified through new Road to Success program	

## health & safety

2014 GOALS	ACHIEVED	NOT ACHIEVED	ON TRACK	NOTES	2015 GOALS
Register to OHSAS 18001 Standard	●			Certified to the OHSAS 18001 Standard in June, 2014	
Update Safe Work Practices and Job Hazard Analyses Manual	●				Training and communication across all business units
Emergency Communication Plan	●			Developed program and communicated to managers and key contacts. Employee Tools and Resources shared on a dedicated intranet page and password-protected internet page	

## our community

2014 GOALS	ACHIEVED	NOT ACHIEVED	ON TRACK	NOTES	2015 GOALS
Increase interoffice collaboration on sustainability and wellness initiatives			●	Held our first intercontinental commuter challenge in 2014	Run 3 company-wide campaigns
Develop formalized donations / sponsorship program	●			Committee established in March, 2014. Intranet site, request forms and tracking system implemented	Develop a process for tracking volunteer hours Increase employee awareness of charitable donations / sponsorships by 20% by 2016

## our offices

2014 GOALS	ACHIEVED	NOT ACHIEVED	ON TRACK	NOTES	2015 GOALS
Register to ISO 14001 Standard	●			Certified to the ISO 14001 Standard in June, 2014	Implement initiatives and awareness campaigns in support of the aspects identified under ISO 14001
Increase sharing of project-related sustainability attributes			●	Introduced a project-related sustainability blog in 2014 Implemented a sustainable projects register and added sustainable attributes to project sheet template	Continue to promote the application of the tools developed in 2014 and share project lessons on our blog and in team meetings
Develop sustainable projects checklist			●	Committee assembled to develop checklist to apply at defined stages of design and project management	Apply to select projects and evaluate system before rolling out company-wide
Increase staff awareness of in-office environmental initiatives			●	Since 2012 awareness went from 52% to 64% in 2014	Continue to increase awareness - 75% by next survey
Track business travel		●		Enterprise system was not capable to compile necessary data	Target will be carried forward as a course of investigation
Investigate increasing the post-consumer content in our copy paper		●			Roll into initiative to implement green purchasing guidelines

# about KCB

KCB is an international engineering, geoscience and environmental consulting firm with its head office in Vancouver and nine offices in strategic locations in Canada, Peru, Australia and the United Kingdom. We have a strong reputation for quality and technical excellence in a range of services including mining, environmental, water, power, transportation, oil sands, and oil and gas. We provide environmental, engineering and geoscience services for resource and infrastructure projects and have the ability to assemble multi-disciplinary teams to cover a range of project needs.

KCB is an affiliate of Louis Berger, a global infrastructure and development firm. Through our association with Louis Berger, we have access to a resource base of 6,000 employees in more than 50 countries and are able to respond to local conditions while providing clients with the technical resources and rapid response capabilities of a leading global organization.

## 2014 PROJECT LOCATIONS

CANADA
PERU
PAPUA NEW GUINEA
AUSTRALIA
PANAMA
USA
MAURITANIA
INDONESIA
UNITED KINGDOM
ECUADOR
DEMOCRATIC REPUBLIC OF CONGO
BRAZIL
SWEDEN
MONGOLIA
NICARAGUA
FINLAND
RUSSIAN FEDERATION
PHILIPPINES
KAZAKHSTAN

### Office Locations

**CANADA**  
Vancouver  
Calgary  
Edmonton  
Saskatoon  
Sudbury  
Toronto

**AUSTRALIA**  
Brisbane  
Perth

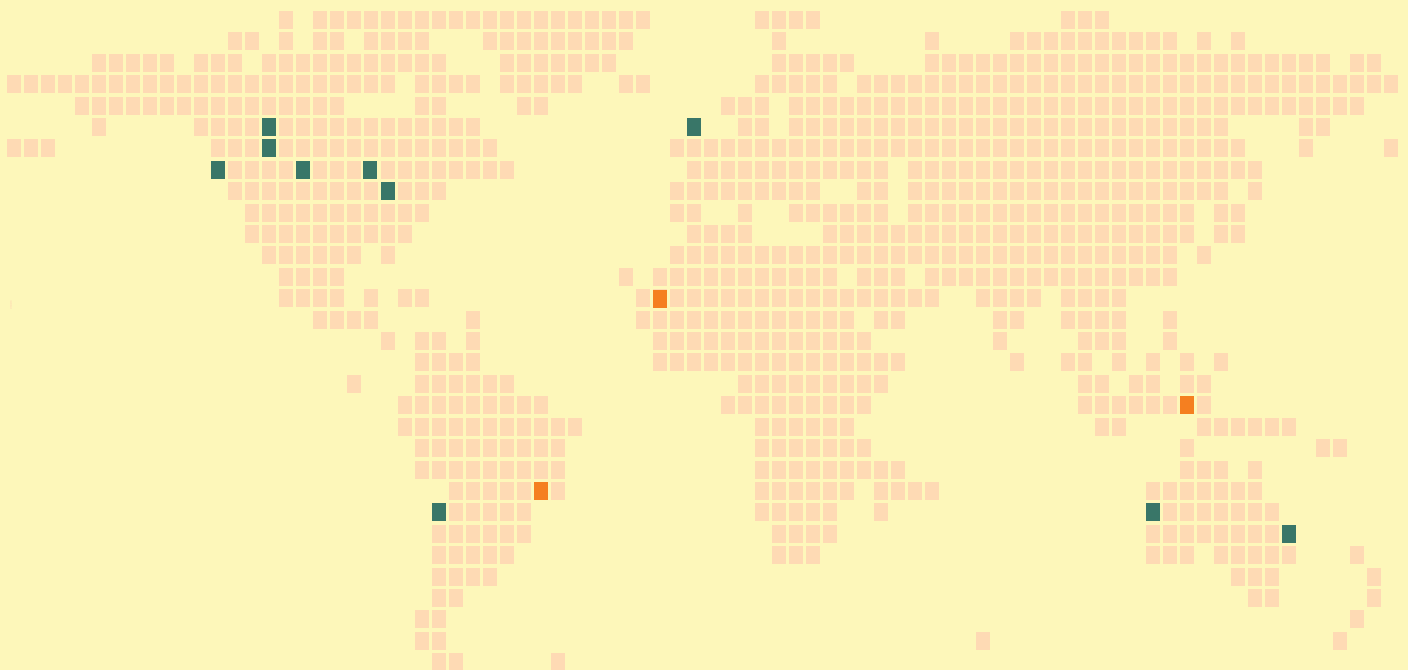
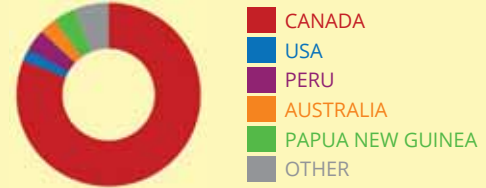
**PERU**  
Lima

**UNITED KINGDOM**  
London

### Field Offices

**BRAZIL**  
**MAURITANIA**  
**INDONESIA**

### Percentage Fee Revenue by Region



## CORPORATE GOVERNANCE

KCB is a private consulting firm with approximately 500 employees. Shares in the company are held by employees and a major shareholder, Louis Berger.

### EXECUTIVE COMMITTEES

The Board of Directors is comprised of three members nominated by employee shareholders and three nominated by Louis Berger.

The Board appoints the President who, in turn, appoints the senior executive team. The President chairs the Operating Committee, an advisory group to the President, which meets quarterly to review business unit budgets and performance.

### BUSINESS CONDUCT AND ETHICS

KCB's reputation in the business community depends on its employees conducting themselves in an ethical manner. Within one week of joining the organization, employees must become familiar and comply with the Company Charter and complete our mandatory Code of Business Conduct and Ethics training program.

### INTEGRATED MANAGEMENT SYSTEM

In April, 2014 we were pleased to be recommended by BSI Canada for ISO 14001 and OHSAS 18001 registration, which came into effect in June as part of our integrated management system.

Our integrated management system (IMS) steers our business conduct, the manner in which we undertake our projects, and how we interact with our clients, the community and the environment. It consists of quality, health and safety, and environment procedures maintained by the following the groups:

- A Global IMS Committee
- Four regional Health and Safety Committees
- A Global Sustainability Committee
- Four regional Sustainability Committees

Part of our IMS includes the regular assessment of our legal compliance and the effectiveness of the system through management reviews. KCB's legal and other requirements related to quality, health and safety, and environment are listed in a Compliance Register which is made available to all staff. In this register, we list

workplace and environmental hazards - at a broad level - along with their respective mitigations. We also include professional practice requirements applicable to engineers and scientists set by law or by the governing professional associations.

The following steps are taken to confirm KCB's compliance with legal and other requirements:

- Legal requirements identified in the Compliance Register are reviewed every three (3) years, at a minimum
- Significant changes to legislation identified between review periods - including from audit, inspection and investigation findings - are addressed on an ongoing basis

We assess the effectiveness of our IMS using performance indicators to identify areas of strength and areas for improvement. Results are analyzed to identify trends and communicated regularly to employees.

Management review of our IMS includes the regular assessment of the following information:

- Client feedback and retention
- Employee survey results
- Audit, inspection and incident investigation results
- HSE performance statistics compiled quarterly and annually
- Monthly project and proposal monitoring reports
- Quarterly reports to the Operating Committee

### INDUSTRY BENCHMARKING

KCB continues to be recognized for its commitment to best business practices. Highlights include:

- Achieving Platinum status with Canada's Best Managed Companies program by retaining its Best Managed designation for six consecutive years or more;
- Maintaining our Platinum status on PSMJ's Circle of Excellence with our 6th consecutive win; and
- Being named to the ZweigWhite Hot Firm list for the 5th consecutive year.





# our projects



As a part of our integrated management system, KCB uses a Quality Management System (QMS) to provide a consistent and disciplined approach to project management and to our engineering, geoscience and environmental consulting services. Our QMS has been registered to the ISO 9001 standard since 1999. In addition to the quantitative data collected for this report, we will share qualitative information through feature projects where we played a significant role in sustainable practices. To focus our efforts, we developed a set of Sustainable Project Attributes. They include:

## environmental

- E1** Responsible water management
- E2** Special consideration for flora / fauna
- E3** Rehabilitation beyond industry standard

## social

- S1** Mentoring local people
- S2** Design / service to improve social conditions
- S3** Transfer of technology or skills
- S4** First Nations integration and application of Traditional Knowledge

## innovation

- I1** Advancement in research and technology

## design

- D1** Responsible land use
- D2** Designs to reduce, repurpose / reutilize remaining materials
- D3** Design to improve safety conditions



## Winner of the ACEC BC Award of Merit

# composite barrier wall & rockshed structure

On November 25, 2012 a 53,000 m<sup>3</sup> rock landslide occurred along the Canadian National Railway (CN) track, at Mile 109.43, between Lytton and Boston Bar, British Columbia. The slide debris covered 70 m of track with debris up to 10 m deep and destroyed a 21 m long concrete rock shed, causing a 4-day service disruption.

KCB was contracted by CN to characterize and assess rock landslide hazard at the site; and recommend, design and implement passive measures to improve safety and protect train service at track level.

KCB designed and constructed a composite barrier wall / rock shed structure to protect the track from potential rock landslides.

Particularly hazardous conditions were experienced while scaling the rockslide area. During the summer of 2013, a gully formed from wind in the dry overburden above the head scarp of the landslide, generating constant raveling and potentially unsafe working conditions on the slope and at track level. To protect the workers, a mesh attenuation curtain was installed across the active slope.

This section of CN's single-track mainline is part of the CN / CP Rail joint running initiative which sees all CN and CP Rail westbound traffic (Kamloops to Vancouver) running on CN tracks. The service disruption on this line caused significant business losses to both railways. One of the challenges of the construction of this composite structure along the operating railway was to deal with the ongoing train traffic.

KCB's innovative design solution was to use modular components, including a retaining wall, rock shed concrete roof panels and rock shed footings, which could be pre-cast and transported to the site. The structure consists of pre-cast concrete footings, steel frames and concrete roof panels. On the down-slope side of the structure the concrete footings were attached to micropiles which extended down through the talus and heavily fractured bedrock. The retaining wall and shed components are independent from each other so rockslide impact forces on the wall are not transferred to the shed.

Ground hazards are CN's third most costly type of railway hazard, with rock and debris landslides contributing to 10% of their annual accident costs. These statistics highlight the importance of a structured ground hazards risk management system in addressing both emergency situations and potential future incidents. The benefit of KCB's rock slope risk management approach utilized in this project is to reduce the number of service disruptions and associated costs for the operator; and avoid environmental contamination and dangerous consequences to the public.

### Sustainable Project Attributes

- E1 Responsible water management
- E2 Special consideration for flora / fauna
- S2 Design / service to improve social conditions
- S3 Transfer of technology
- I1 Advancement in research and technology
- D3 Design to improve safety conditions



KCB's design methodology for landslide protection structures is transferrable to other sites.





The Mission Bridge spans the Fraser River, connecting Mission with Abbotsford

# mission bridge

## Sustainable Project Attributes

- E1 Responsible water management
- E2 Special consideration for flora / fauna
- S2 Design / service to improve social conditions
- S3 Transfer of technology
- S4 First Nations integration and application of Traditional Knowledge
- I1 Advancement in research and technology
- D3 Design to improve safety conditions



To reduce greenhouse gas emissions during construction the contractor's drivers and equipment operators were required to follow idle reduction measures.

The Mission Bridge spans the Fraser River in BC and connects the District of Mission with the City of Abbotsford. KCB was part of a design team responsible for the seismic retrofit of the bridge to improve its structural integrity in the event of a major earthquake.

Project planning and execution considered factors necessary to eliminate or minimize potential environmental and social impacts. At the outset of the project, consultations were held with the First Nation community to discuss the social impacts of the project. For example, construction at the riverbanks was permitted only during the fishery-timing window between June and September, and construction was avoided during the freshet period to eliminate the risk of contaminating the Fraser River with construction materials.

The 1 km long four-lane bridge is supported by a series of concrete bents or piers founded on piles. Deep post-glacial river sediments that will trigger liquefaction during a seismic event underlie the bridge site. As a part of the seismic retrofit, the soils surrounding the bridge were densified to strengthen the ground. Many densification techniques are not only expensive; they also require substantial drilling and water, and produce waste and wastewater. The priority of the team was to utilize a method that would minimize the environmental impacts and avoid as much instream work as possible.

The design team used a compaction piling technique, which does not require water or produce any wastewater to densify soils under the bridge deck. The same technique was successfully applied to our work on the seismic retrofit of the Knight Street Bridge however, this method had not been used on a site with such deep soil conditions. To verify and prove the effectiveness of this method on the site, we designed a test program prior to construction. Based on the results from this test program, this relatively clean technique was effectively used to densify soils under the bridge deck at the south river bank and south abutment. The process eliminated the risk to fish habitat and water quality, minimizing the environmental impacts on the Fraser River.

To further reduce the environmental impact on the river, construction activities were planned, scheduled and performed in such a manner that no active discharge of water occurred from construction sites into the river or any other designated streams including ditches. The areas within the construction footprint, which were characterized by poor drainage or with drainage flowing into fish-bearing streams were designated as special erosion protection areas, and in these areas, construction activities were permitted only during the dry summer conditions.



Kirkland Lake Gold 204 stope and 204 - 3 raise cap construction

# mine shaft caps

## Sustainable Project Attributes

- I1 Advancement in research and technology
- D2 Design to reduce, repurpose / reutilize remaining materials
- D3 Design to improve safety conditions

In 2013, KCB was retained by Kirkland Lake Gold Inc. to design and oversee construction of new concrete shaft caps on their mining property. Shaft caps are a critical safety measure to prevent unapproved or accidental access to mines. The objective of the project was to reduce the lifecycle costs of the shaft caps and costs for financial assurance at closure.

The minimum design standard for concrete caps is detailed in Ontario's Regulation 240 / 00 under part VII of the Mining Act; and a typical shaft cap life-span is 50 years. A long-life shaft cap, achieved through optimizing its concrete design, could reduce the required frequency of inspections, repairs and replacement, thereby reducing associated costs and limiting disruption to the surrounding environment.

KCB's Power & Transportation group designs concrete bridge decks with up to a 100-year design life. By using technologies from bridge building, our design team developed a concrete shaft cap with an estimated design life of 200 years.

The concrete design changes implemented to increase the shaft cap life included the following:

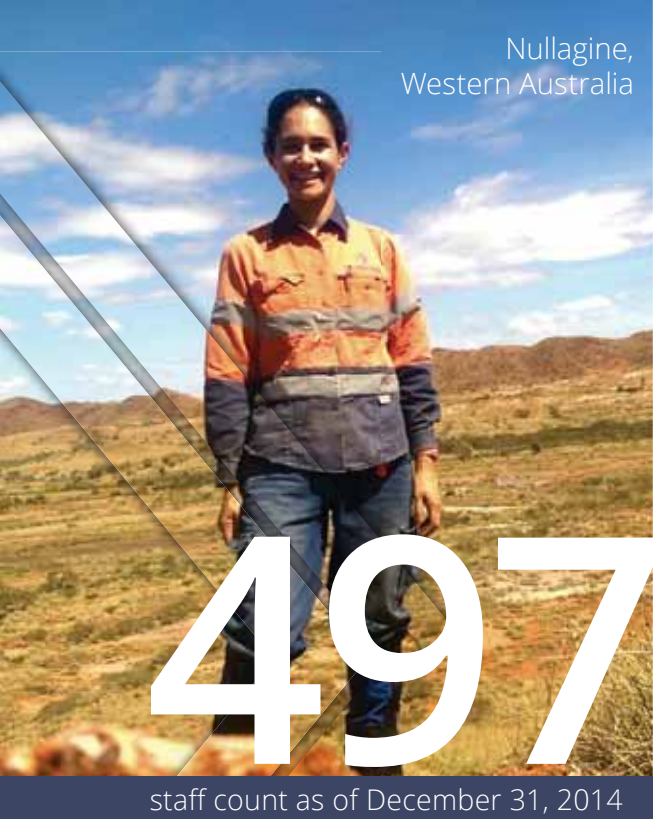
- Using low-shrinkage, low-permeability high performance concrete (design life exceeding 100 years)
- Using silica fume - a bi-product of elemental silicon or ferro silicon alloy production, in the cement mix. The small size of silica fume decreases concrete permeability and extends concrete design life by 20 years or more depending on exposure
- Using stainless steel reinforcing bar in place of standard carbon steel reinforcing bar in the concrete

These combined design changes allow for a significantly longer-lived concrete that lowers the frequency of replacement and meets the requirements of the Ontario Mining Act. The environmental, economic and social benefits include:

- Substantial resource savings
- Recycling of a waste product (silica fume)
- Lowering overall costs to the client
- Reducing disruptions to existing infrastructure overlying shaft caps (e.g. roads, sidewalks, buildings)



Nullagine,  
Western Australia



497

staff count as of December 31, 2014

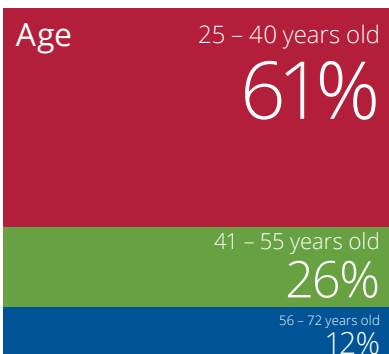
# our people

KCB employs approximately 500 people who work out of our 10 offices in Canada, Australia, Peru and the UK.

COUNTRY	FULL TIME	CASUAL / PT	TOTAL
CANADA	376	32	408
AUSTRALIA	40	3	43
PERU	40	6	46
<b>TOTAL STAFF</b>	<b>456</b>	<b>41</b>	<b>497</b>

over 200 subconsultants and subcontractors were employed in 2014

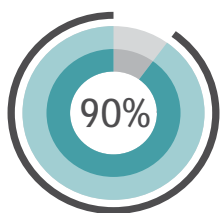
\$19 M paid out in services



Gender Statistics	HEADCOUNT	WOMEN	MEN
2014	497	35.6%	64.4%
2013	496	35.6%	64.4%
2012	524	31.4%	68.6%
2011	490	30.1%	69.9%
2010	407	27.0%	73.0%
2009	352	29.2%	70.8%

The ratio of women to men has increased by 20% since 2005

24% of our staff are females registered with professional associations, which is on par with our industry peers



90% of women return to work at KCB after parental leave



100% of men return to work at KCB after parental leave



## Career Opportunities

- 64 employees received promotions or job classification changes in 2014. This represents 13% of our staff.
- 24 women were promoted in 2014.
- Five employees were promoted to Associate level, two of which were women.

In 2014, KCB participated in the Engendering Engineering Success Research Project. EES is a joint research project between the University of Alberta, the University of British Columbia, and the University of Guelph. Its purpose is to identify which organizational practices best predict an inclusive and supportive workplace culture that maximizes organizational commitment and productivity for both men and women.

## Special interest groups and committees

We have committees in place to help support the development of our staff, the health and well-being of our communities and mitigate our impact on the environment.

Young Professionals

Women-in-Klohn

Sustainability Committee

Environmental Committees

Joint Health & Safety Committees

Social Committees

## Diversity

In 2013, we launched the Women-in-Klohn (WIK) Committee to help attract, retain, engage and support women at KCB.

Through our intranet site and online forums our WIK committee provides information on policies pertaining to parental leave, professional mentoring opportunities, insights into association events and more.

Several presentations were organized across the company including:

- Diversity and Inclusion, Moving Forward Together
- Understanding stress, increasing resiliency
- Communication techniques
- Managing transitions before and after leave
- Unconscious bias

## Communicating diversity on our intranet



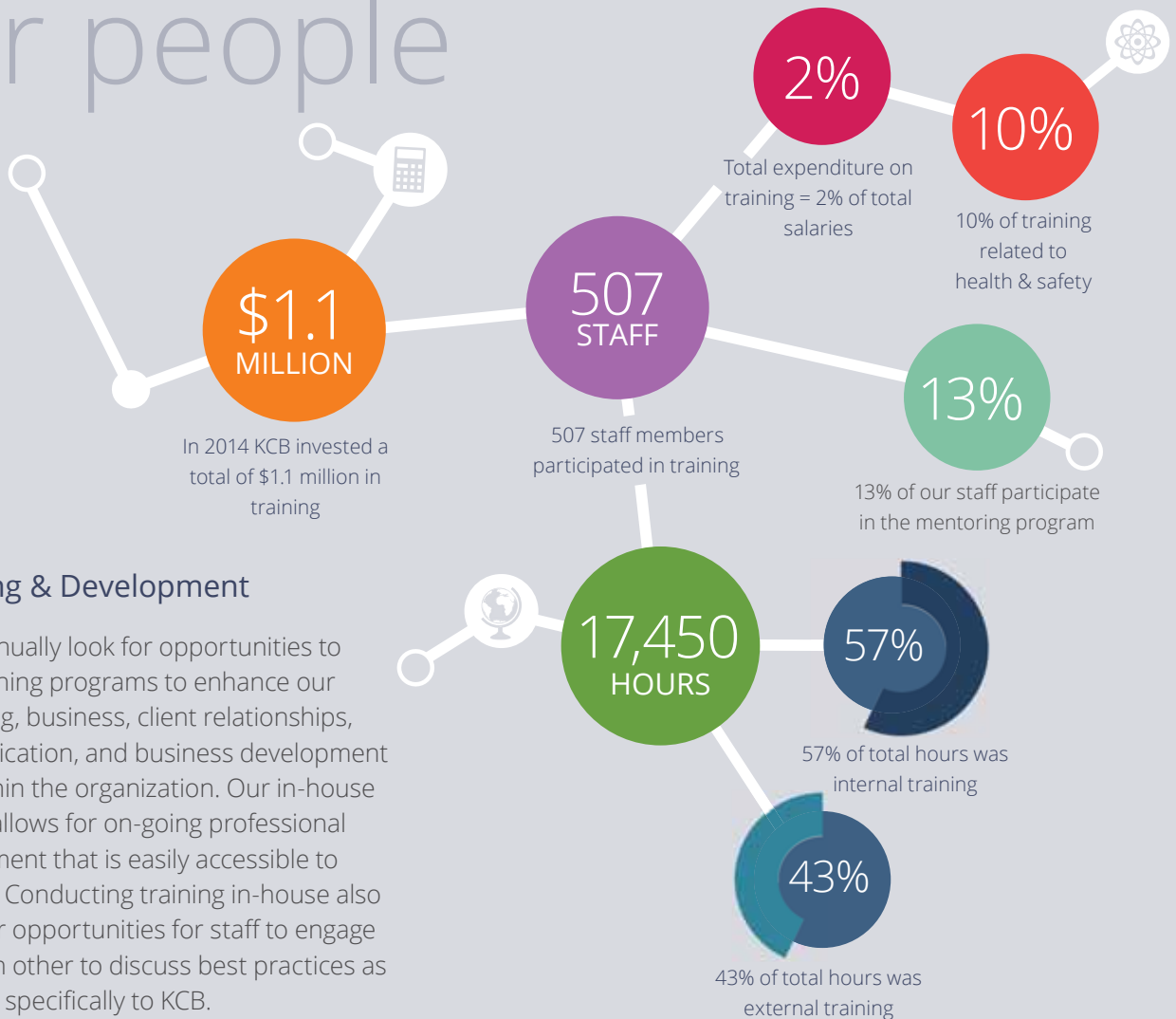
Connection to Company Mission, Vision and Values	Respectful Workplace Initiatives	Welcoming New Comers
Interesting Statistics and Insights		Community and Corporate Responsibility
Young Professionals		Fair Hiring Practices
WK Women-in-Klohn	Employee Family Assistance and Wellness Programs	Promotions and Accolades
		Events

Yammer / People News Blog / Return to Our People Page

21% of our managers are women



# our people



## Learning & Development

We continually look for opportunities to offer training programs to enhance our consulting, business, client relationships, communication, and business development skills within the organization. Our in-house training allows for on-going professional development that is easily accessible to our staff. Conducting training in-house also allows for opportunities for staff to engage with each other to discuss best practices as it applies specifically to KCB.

## Road to Success



In 2014, we reframed our performance review process under the brand *Road to Success*. We wanted to take a more forward-looking approach to the review process with a stronger emphasis on setting personal objectives and aligning professional development opportunities to achieve those goals. At the end of 2014, 70% of our staff completed the *Road to Success* program. In 2013, 90% of our staff completed performance reviews. We feel that the lower response rate in 2014 was because we were adapting to a new, more comprehensive program. Employees are welcome to begin the process at any point in the year.

Review

Objective setting

Assess

Develop

## Ethics Training

To ensure we are all committed to the highest standards of ethical conduct in all that we do, we developed additional tools and resources to highlight the components of our Code of Business Conduct and Ethics. One of these tools is our new on-line Ethics training which is now mandatory for all staff.



24 Hrs of Adrenalin – Team Cyklohn


Dickson Dam, Alberta

# health and safety

Our goal is to prevent harm in our offices and laboratories, and on project sites worldwide by:

- Meeting or exceeding legislative, regulatory and client requirements
- Communicating and reinforcing health and safety requirements with our employees, subcontractors and visitors
- Ensuring all employees, subcontractors and visitors understand and carry out their responsibilities, including hazard identification, risk assessment, incident reporting and investigation
- Continually improving our system in collaboration with employees through training, measurement of our performance, sharing of lessons learned, and annual reviews of the effectiveness of our health and safety program

The Director, QHSE is responsible for maintaining KCB's IMS in collaboration with the Global IMS Team, consisting of representatives from each business unit and primary office location. The Global IMS Team is responsible for supporting local management and employees to promote a strong culture of quality, health and safety.

 In June 2014, we successfully registered to the OHSAS 18001 Standard.


Employee representation on our Joint Health and Safety Committees remains consistent at **11%**



**EMERGENCY COMMUNICATION PLAN**

 We developed an Emergency Communications Plan to provide tools to assist with the assessment of the scope and severity of emergency events that could disrupt our business. Details of the plan are shared with staff through a portal on the company website and on our intranet site.

Client Requirements - We maintain good standing with PICS, ISNetwork, Contractor Qualification Network, ComplyWorks and BROWZ.

 **KCB Introduces Safety Observation Cards**

Near miss incident reporting and safety observations are considered leading indicators of safety performance. Responding to a safety observation or near miss incident is proactive, is shown to prevent major and minor losses and focuses on continual improvement. We also invite staff to submit positive observations to help raise awareness of safety best practices.

**350** safety observation cards were submitted in 2014.

Every year KCB participates in National Organization Health & Safety (NAOSH) Week and commemorates the Day of Mourning.






# Initiatives to support Health and Wellness

Our Vancouver Joint Health & Safety Committee formed a health sub-committee to focus on the health and well-being of our staff. Initiatives include healthy snack offerings which is organized with the Sustainability Committee and bi-weekly e-mail reminders to check-in with staff on some basic health topics.

## 10,000 step challenge

The Australasia group embarked on some healthy competition in February to encourage healthy habits and reduce their impact on the environment. The office applied for government subsidized pedometers to measure their steps for the month of February as part of a team challenge.

**FIT FEBRUARY**  
10,000 STEPS CHALLENGE

Are you up to the challenge?  
Start the year right with KCB's Fit February 10,000 steps challenge.

**Klobn Crippen Berger**



Australasia also participated in R U OK. This is a national day of action intended to inspire conversation about mental health and support the people in your life.

## Women in Klohn



In recognition of the need to manage the stress of everyday living, WIK hosted a presentation for all staff on understanding stress and increasing resilience.

## Wellness matters newsletters




This year our Human Resources team added to the benefits already provided by KCB with the addition of an Employee Family Assistance Program (EFAP). The EFAP is specifically designed to provide employees and their dependents with assistance on personal matters. This private and confidential program allows our staff access to timely, professional assistance and support to help manage all of life's complexities—be it issues with Work, Health or Life. Some of the program features include nutrition support services, health coaching, naturopathic services and self-help resources for stress management, smoking cessation, financial planning and wellness initiatives.

# our community

Our community initiatives include:

- Contributing to charitable organizations to support necessary programs to build stronger communities, aid our youth and support people living in poverty
- Investing in research to advance technology and methodology for more sustainable project outcomes
- Investing in scholarships to support students entering the profession
- Supporting employee-led charitable initiatives
- Supporting employee-led initiatives to participate in community events to improve staff health and wellness

 The Donations / Sponsorship Committee was established in March 2014. The Committee reviews requests from management, employees and outside sources and makes recommendations to the President to better align our philanthropic efforts with our mission, vision and values.

A key objective in 2014 was to implement a system to track requests and expenditures, improve communication to our stakeholders and report progress to the Operating Committee.

Our goal in 2015 is to refine the system and start to track volunteer hours.

KCB and its employees have long-term affiliations with several groups, some spanning a quarter of a century. These are groups such as The United Way, BC Children's Hospital, Australia's Biggest Morning Tea and Adopt-A-Family programs. Programs such as these rely on the on-going commitment of our staff to successfully execute campaigns every year.



In 2014 KCB invested **\$125,000** in community programs but what is even more impressive is that employees raised an additional **\$76,000** in donations to support these causes.



## Community Investment by program category





In our on-going commitment to contributing to our professional practice a number of KCB staff sit on technical committees and boards and have authored several papers.

## Active Board and Committee Members

<b>Shane Johnson</b>	Board of Directors, Association of Consulting Engineers of Canada
<b>Alex Sy</b>	Board of Directors, The Geoprofessional Business Association
<b>Harvey McLeod</b>	Chair of Tailings Committee, International Commission on Large Dams
<b>Dan Campbell</b>	Member of Council, Association of Professional Engineers and Geoscientists of BC
<b>Mark Bietting</b>	Membership Director, Canadian Chapter of the International Association of Hydrogeologists
<b>Karen Sagar</b>	Mentor, Association of Professional Engineers and Geoscientists Alberta
<b>Chuck Slack</b>	Director, Alberta Branch of the Canadian Water Resource Association
<b>Garry Stevenson</b>	Director / 2014 Conference Organizing Committee, Tunneling Association of Canada
<b>Michelle Van-Elsberg</b>	Member of the Calgary Board of Trade
<b>Howard Plewes</b>	Tailings Committee Member, Mining Association of Canada
<b>Lindsay Robertson</b>	Environment Committee Member, Mining Association of Canada
<b>Shirley McLaren</b>	Organizational Quality Management Committee Member, Association of Professional Engineers and Geoscientists of BC

## Technical Papers

*The Geological Influences of Glacially Rafted Clearwater Formation on the Design and Operation of an External Tailings Facility.* Bayliss, Philip, Masterson, Wong, Rahman, Hepp and Clarke. 2014

*Dam Breach Tailings Runout Analysis.* Chen. 2014

*Oil Sands Tailings Dyke De-Licensing - State-of-Readiness from Tailings Pond Lifecycle Perspective.* Chin. 2014

*Feasibility of Sand Farming to Dewater Coarse Sand Tailings.* Nguyen. 2014

*Geotechnical Assessment of Alameda Dam.* Quinn, Chin and Pernito. 2014

*Reconstruction of the History of the Palliser Rockslide based on <sup>36</sup>Cl Terrestrial Cosmogenic Nuclide Dating and Debris Volume Estimations.* Sturzenegger. 2014

*Hydrology and Sediment Modelling in a South Pacific Environment.* Ind. 2014

*Rock Mass Fall - Rock Avalanche Design Loads for Railway Track Protection Structures.* Busslinger, Keegan and Wu. 2014

*Construction of a Composite Barrier Wall / Rock Shed Structure at Mile 109.43 of CNR's Ashcroft Subdivision.* Keegan, Willoughby, Busslinger, Sturzenegger and Wen. 2014

*Analysis of a Complex Rock Slope Instability with a Stepped Failure Surface using Discrete Fracture Network Models.* Wen and Sturzenegger. 2014

*Design and Site Investigations for the L-L Cyclone Sand Dam.* Singh, Plewes and Birch. 2014

*Innovative Solutions to a Highly-Skewed Railway Overhead Built on Compressible Clay.* Hamersley, Wu and Lawson. 2014

*Field and Desktop Waste Rock Classification Guide for a Metalliferous Mine in the Northern Territory, Australia.* Landers, M., B. Usher, D. Faulkner, P. Marianelli and K. Masterman. 2014.

*Hydrology and Sediment Modelling in a South Pacific Environment.* Ind, M. 2014.

*A rapid and flexible method for Simulation of CSG Water Production: Application in the Surat and Bowen Basins.* Strand, Keir, Reading, Usher and Dickinson. 2014.

*A Dynamic Sediment Simulation to Predict the Variability of Suspended Solids Concentrations over Life-of-Mine for Application to a Risk-based Environmental Assessment.* Ind and Usher. 2014

*Integrated Site Water Balances and Water Quality Models for Decision-making over Life-of-mine.* Strand and Usher. 2014

## Our Professional Community

In addition to our memberships in professional organizations such as APEGBC and APEGA, KCB or its employees are actively involved with organizations such as:





# our offices

➤ In 2014, KCB qualified for ISO 14001 registration which applies to our office and laboratory activities.

➤ In October KCB began using Concur, a paperless program to submit expense reports. Since its implementation 1,756 reports with a total of 8,287 lines of entry have been submitted in paperless form.

Local in-office environmental committees implemented initiatives to recognize positive sustainable habits. In Vancouver, the office launched the “You Have Been Mugged” campaign to recognize random acts of sustainability.



➤ Awareness of environmental initiatives has improved since 2012 but there is still room for improvement

2012 – 52.2%

2014 – 63.8%

Although our ISO 14001 certification applies to the Vancouver, Calgary, Edmonton, Brisbane, Lima and Sudbury offices, the policies and procedures put in place for ISO 14001 apply to all our operations.

The Global Sustainability Committee now includes representatives from all offices registered to ISO 14001. Each representative is responsible for implementing local in-office environmental initiatives, and where possible we coordinate our efforts globally.

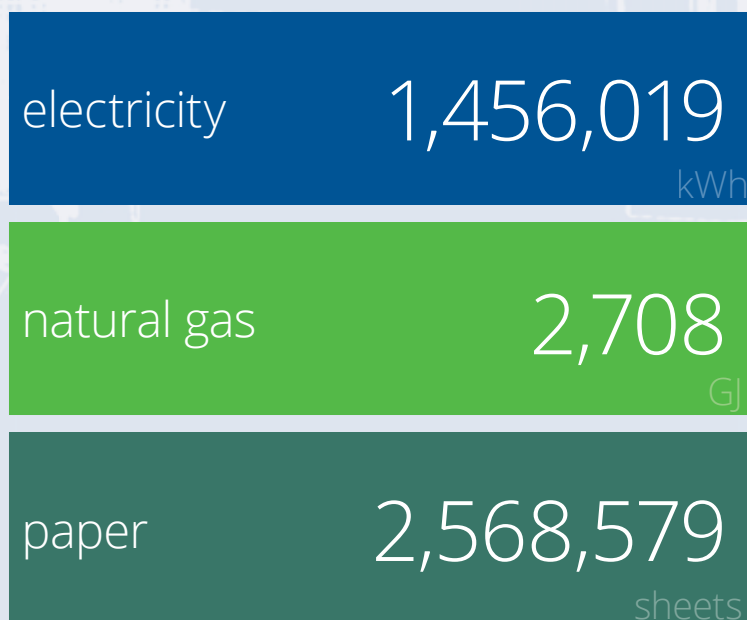
The environmental aspects identified related to ISO 14001 registration align with the material aspects identified and reported on since 2012. Our environmental initiatives include:

- Reducing non-hazardous waste
- Reducing and managing hazardous waste
- Reducing energy consumption
- Reducing water consumption
- Reducing our environmental footprint

## Energy Consumption

In previous reports, we shared data on energy consumption in our two largest offices in Vancouver and Calgary. We now include data from all ISO 14001 offices. We lease office space in all our locations and energy consumption is based on the percentage of occupied space. Three of our six registered offices use natural gas.

## Total Consumption in 2014



# Electricity

In 2014, we expanded the reporting of our in-office energy and paper consumption to include the six locations now registered to ISO 14001.

# Natural Gas

# Paper Consumption

number of sheets

Vancouver	2012	2013	2014	
Electricity (kWh)	940,773	746,822	751,162	
Number of people	234	207	206	
Office area (ft <sup>2</sup> )	31,879	37,879	37,879	
kWh / person / year	4,020	3,608	3,646	
Calgary	2012	2013	2014	
Electricity (kWh)	347,487	401,520	409,752	
Number of people	145	141	154	
Office area (ft <sup>2</sup> )	26,311	31,409	31,409	
kWh / person / year	2,396	2,848	2,661	
2014	BRISBANE	EDMONTON	LIMA	SUDBURY
Electricity (kWh)	134,920	4439,79	37,402	78,804
Number of people	37	19	47	19
Office area (ft <sup>2</sup> )	8,234	8,259	6,350	7,226
kWh / person / year	3,646	2,315	769	4,147

Vancouver	2012	2013	2014	
Natural Gas	1,076	871	739	
Number of people	234	207	206	
Office area (ft <sup>2</sup> )	31,879	37,879	37,879	
GJ / person / year	5	4	4	
Calgary	2012	2013	2014	
Natural Gas	1,256	1,706	1,636	
Number of people	145	141	154	
Office area (ft <sup>2</sup> )	26,311	31,409	31,409	
GJ / person / year	9	12	11	
2014	BRISBANE	EDMONTON	LIMA	SUDBURY
Natural Gas	N / A	N / A	N / A	333*
Number of people				19
Office area (ft <sup>2</sup> )				7,226
GJ / person / year				18

\* Mar – Jan estimated from 2015; 2014 values had not been separated out by building management.  
 \* October estimated to be similar to November


Office	2012	2013	2014
Brisbane			131,165
Sheets / person			3,545
Calgary	902,632	922,500	1,085,000
Sheets / person	6,225	6,543	7,045
Edmonton			90,000
Sheets / person			4,737
Lima			176,900
Sheets / person			3,767
Sudbury			78,000
Sheets / person			4,105
Vancouver	1,465,000	1,193,000	1,005,500
Sheets / person	6,261	5,763	4,881

Our paper consumption reflects standard printer paper; both 8.5 x 11 and 11 x 17, coloured paper is also included. The numbers of sheets are based on orders placed in 2014.



# Office Environmental Initiatives

## Reduce Paper Consumption

 In Australia, we developed an app for drill hole field data collection. We are looking for more opportunities to introduce custom apps to increase efficiency and reduce paper.

Project deliverables are primarily output using standard paper. We track basic paper consumption as a baseline for waste generation. This helps to raise awareness and encourage appropriate choices as we manage project workflows.

Throughout the year, we looked for opportunities to implement electronic processes for day-to-day tasks to help reduce paper consumption.

## Reduce Energy Consumption

### Computer Monitor Counts

Calgary, Vancouver and Brisbane counted how many computer monitors were left on overnight. The numbers will be used as a baseline to run awareness campaigns demonstrating the power of small decisions. All offices conducted two random monitor counts. The percentage of computers left on were communicated through our intranet. A random draw was held for those who turned their computers off.

### Intercontinental Commuter Challenge

In 2014, three of our largest offices participated in an Intercontinental Commuter Challenge. In this friendly competition employees signed up to log their commuting activities for two weeks. A points program allowed us to name office champions and an individual champion. The competition was so successful that all the offices are participating in the 2015 Challenge!

### Encouraging Public Transit

One of our divisions offers pre-paid transit tickets to staff travelling to and from business meetings. This encourages the use of transit by making the process simple. In 2014, 630 transit tickets were used. This practice is being shared with other groups across our locations.

## Reduce Office Waste

### In Calgary

- Shared the Clean Bin Project movie
- Toured the City of Calgary recycling facility
- Reducing waste at Christmas communication
- Green cleaning communication
- Reducing food waste communication
- Updates to office signage
- Alberta launched a Kudos Recognition and Appreciation Page

### In Vancouver

- In an effort to reduce the amount of waste generated during meetings, KCB purchased a set of 15 reusable dishes retained for meetings.
- Office staff noticed not everyone was composting after staff events. In this office, staff events can have as many as 150 attendees so now for the larger events the compost bin is moved to a more visible location and an employee helps sort to ensure that waste is managed properly.
- In September 2014, we eliminated the use of paper cups from all coffee stations in the office.

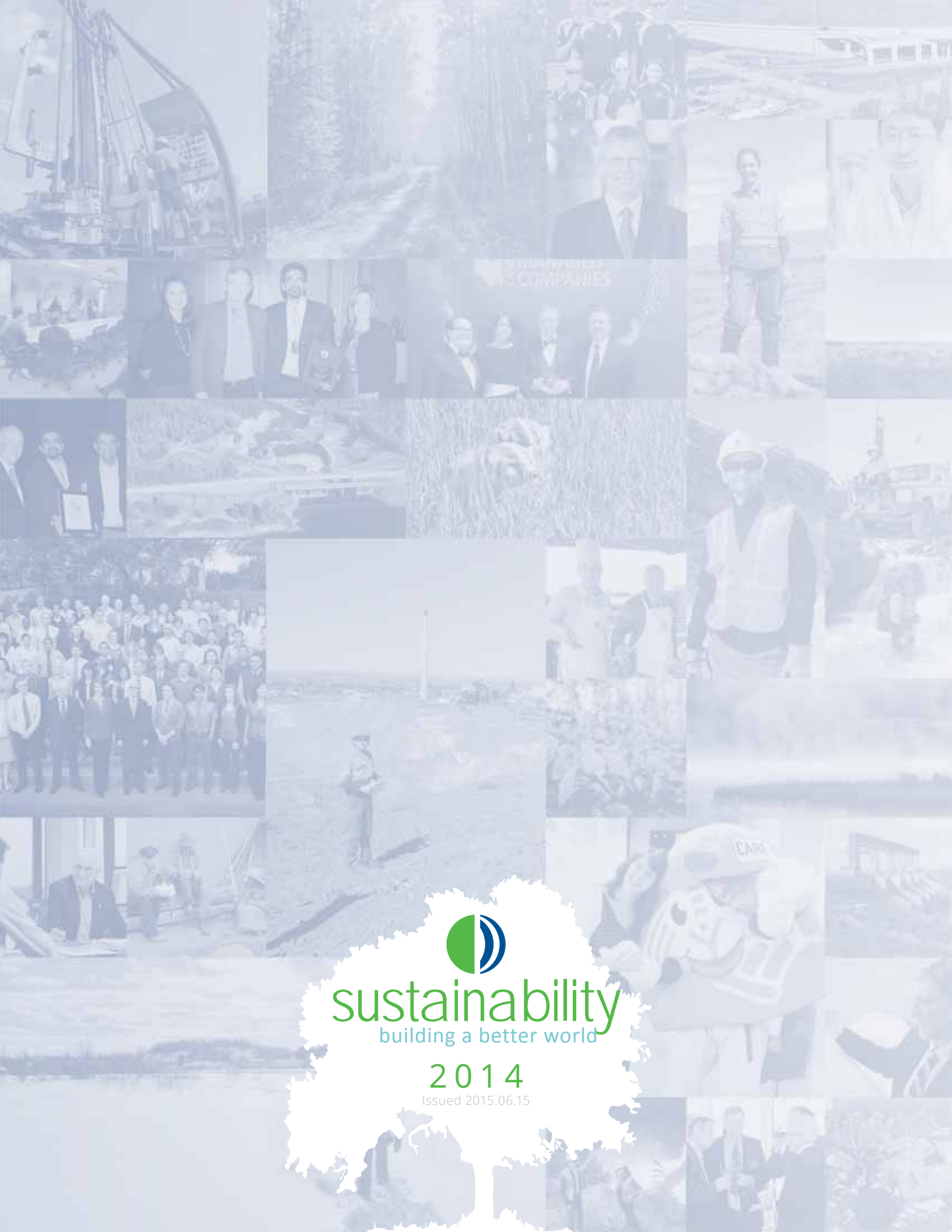
# G4 compliance matrix

G4 CONTENT INDEX	TITLE	PAGE (S)
G4-1	Message from the President	1
G4-3 to G4-10	Organizational profile	5, 6
G4-16	List memberships of associations in which the organization holds a position on the governance body, participates in committees	17, 18
G4-18	Explain the process of defining the report and aspect boundaries	2
G4-19	List all the material aspects identified in the process for defining report content	2, 3
G4-23	Report significant changes from previous reporting periods in the scope and aspect boundaries	2
G4-24	List of stakeholder groups engaged by the organization	3
G4-26	Organization's approach to stakeholder engagement	3, 6, 12 - 19, 21
G4-28, & G4-31	Report profile	2
G4-34	Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts	6
G4-35	Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees	6
G4-56	Organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	3, 6
G4-EN1	Materials used by weight and volume	19, 20
G4-EN3	Energy consumption	19, 20
G4-EN7	Initiatives to reduce energy consumption and reductions achieved	19, 21
G4-A3	Return to work and retention rates after parental leave, by gender	11
G4-LA5	Total workforce represented in formal joint management-worker H & S Committees	14
G4-LA9	Average hours of training per year per employee	13
G4-LA11	Percentage of employees receiving regular performance and career development reviews	13
G4-LA12	Percentage of employees per employee category	11

## KCB project attributes

	CATEGORY	PAGE (S)
environmental	E1 Responsible water management	8, 9
	E2 Special consideration for flora / fauna	8, 9
	E3 Rehabilitation	Not profiled
social	S1 Mentoring local people	Not profiled
	S2 Design/service to improve social conditions	8, 9
	S3 Transfer of technology	8, 9
	S4 First Nations integration and application of Traditional Knowledge	9
innovation	I1 Advancement in research and technology	8, 9, 10
design	D1 Responsible land use	Not profiled
	D2 Designs to reduce, repurpose/reutilize remaining materials	10
	D3 Design to improve safety conditions	8, 9, 10





# sustainability

building a better world

2014

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