

Building a Human Resource Development Roadmap:

Summary of feedback from PDAC members and stakeholders

February 2014



**PROSPECTORS &
DEVELOPERS
ASSOCIATION
OF CANADA**

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Executive Summary

From October 2013 to December 2013, the Prospectors & Developers Association of Canada (PDAC) engaged 140 members and stakeholders (hereafter, “participants”) in a conversation about the PDAC’s role in addressing the human resources challenges facing the mineral exploration industry. The input gathered through this process will inform the creation of a Roadmap, or operational plan, for the PDAC’s Human Resource Development (HRD) program.

To inform the creation of the Roadmap, the PDAC sought input from participants on the human resource challenges that the industry is facing, and the potential role of the PDAC in creating solutions to address these challenges.

The challenges that participants identified fell into three main categories;

- Career awareness and attraction
- Recruitment
- Retention

Suggestions from participants on the role of the PDAC fell into one of the following areas:

1. Advocacy
2. Awareness
3. Creating linkages
4. Training, networking and professional development

About the PDAC

The Prospectors & Developers Association of Canada (PDAC) is the voice of the Canadian mineral exploration and development community. With a membership consisting of more than 10,000 individuals and corporations, the PDAC’s mission is to promote a responsible, vibrant and sustainable Canadian mineral exploration and development sector. The PDAC encourages leading practices in technical, environmental, safety and social performance in Canada and internationally. The PDAC is known worldwide for its International Convention, Trade Show & Investors Exchange, which is regarded as the premier event for mineral industry professionals. The PDAC Convention attracted 30,000 people from 125 countries in 2013 and will next be held March 2-5, 2014, in Toronto, Canada.

Awareness, attraction and recruitment to meet the human resource needs of the industry

Industry associations can play an important role in promoting awareness and attracting new people (students) to the industry for the benefit of their members. This is reflected in the mission of the PDAC, to protect and promote a responsible, vibrant and sustainable Canadian mineral exploration and development sector. This is also reflected in its initiatives that support students pursuing a career in the industry (see Annex A).

In September 2012, the PDAC's Board of Directors approved a new five-year strategic plan for the association. This document reaffirmed the PDAC's commitment to supporting students and addressing the future human resource requirements of the industry, and called for the development of a "HRD Roadmap". The HRD Roadmap will prioritize the human resource challenges the industry is facing and outline solutions that can best support them through the HRD program.

To inform the creation of the HRD Roadmap, the PDAC conducted two months of outreach and gathered input from 140 members and other stakeholders (see Annex B for a detailed discussion of the outreach process). This document provides a summary of the feedback the PDAC received.

Summary of Input

The PDAC sought feedback from specific stakeholder groups on the following areas of inquiry:

Industry

Are there any HR challenges, other than the ones presented in *Unearthing Possibilities* that you believe the industry is facing?

What do you think are the three most important challenges that need to be immediately addressed?

Do you have suggestions to address these challenges for the PDAC to consider?

Who should these solutions involve? Are there linkages that we can create with other groups? What role would these groups play? What value do they bring?

In what areas should the PDAC's HRD program focus its resources over the next five years?

Academia

As an educator, what do you think are the most important challenges facing geoscience graduates as they seek to enter the industry? Do you have suggestions to address these challenges for the PDAC to consider? Who should these solutions involve?

Are there linkages that we can create with other groups? What role would these groups play? What value do they bring?

How do you think the PDAC can support educational institutions to help build a more robust mineral exploration industry?

In what areas should the PDAC's HRD program focus its resources for the next five years?

Students

What do you think the PDAC should be doing to support students?

Do you feel ready to take on an entry-level position in the industry?

Is there a particular field that your education has not prepared you for?
How can the PDAC help you smoothly transition into the industry?
In what areas do you think your program/department needs support?

Stakeholder Feedback

In addition to the challenges established in *Unearthing Possibilities* (see Annex B), which were presented to all participants; they agreed with those and identified the following additional challenges:

- Lack of industry training for new hires
- Difficulties for students to obtain summer job experience (which is critical to their careers) and job placement for new graduates
- Professional registration: deterrent for foreign-trained professionals and decentralised provincial professional bodies limit mobility, especially for new graduates
- Lack of workforce planning and human resources capacity by exploration companies
- Shortage of economic geology professors and courses at Universities, as a result of under-funded Geoscience departments
- Public perception of the industry is a deterrent to attracting new workers

Recommendations

The recommendations received from participants have been grouped into the following categories. The full list of recommendations can be found in Annex C.

Advocacy

- Lobby the Ministry of Education to ensure that Earth Science is taught in more high schools, with consideration for it to be made a compulsory subject in the curriculum.
- Lobby University administrators (Presidents, Vice Presidents and Department Heads) to ensure that there is continued and increased funding for Earth Science departments (this includes field trips/schools, equipment, and hiring faculty members), which continue to be under-funded.

Awareness

- Create and implement a national Public Relations strategy to improve and change the public perception of the exploration and mining industry and raise awareness of the importance of the natural resources sector to the Canadian economy. This should also highlight the diversity of the industry and the positive environmental, community and social responsibility that industry players have shown as well as the positive effects of Canadian involvement in improving regulations for health and safety and the environment.
- Increased awareness of the many ways in which natural resources are used in our everyday lives.

- Promote the analytical and problem-solving creativity that jobs in the mining and exploration industries allow for.
- Increase outreach efforts to promote awareness of the industry, the PDAC and the annual Convention to all students (not limited to geoscience students) at colleges and universities. PDAC should have a larger presence within geology and mining engineering departments at universities and colleges to increase awareness of opportunities for students in exploration and mining.
- Increased awareness of geoscience to high school students and promote opportunities in mining
- Highlight the various opportunities that a degree in geoscience can provide: lab geoanalysis, lab work, research, etc.

Linkages

- Work with industry partners to create a coordinated job placement plan for university students; specifically for summer field work experience, which has been shown to be an important factor in determining whether students continue to work in the exploration industry.
- Connect university departments with industry partners to increase student awareness of the exploration and mining industry and the challenges that come with working in the industry (e.g. cyclical nature of the industry so that students know what to expect of a career in the industry).
- Encourage universities to adapt their curriculum to industry needs to ensure students are prepared for a job in the industry (E.g. field schools, software training, etc.)
- Encourage more mentorship between industry professionals and students/recent graduates. This can help address the skills gap; encourage retiring and retired professionals to take on a mentorship role with new inexperienced workers.
- Encourage companies to donate unused core samples, rock specimens and old equipment to university departments to provide better learning opportunities to students
- Connect software companies to university departments and encourage subsidies for software licenses and training for programs like Gemcom and others to train students

Training, networking and professional development

The suggestions that fall under this heading are geared toward providing networking, training and professional development opportunities for students and recent graduates.

- Offer short courses in software training and modelling programs that students do not learn in school
- Expand the PDAC Student-Industry Mineral Exploration Workshop (S-IMEW) to take on more students or host more workshops like these across the country, that teach practical skills that relate to a starting a career in the industry
- Host networking events to connect students and recent graduates with industry professionals
- Offer short courses specifically for students to fill in the gaps in knowledge that are not offered by most universities: advanced ore deposit geology, mineral economics, economic geology and mineral industry field skills

- Support collaborative field trips for students and industry
- Host a speaker series for geologists to speak at universities about recent interesting resource discoveries to get students excited about exploration and mining
- Host workshops/seminars at universities to educate students about the aspects of the industry they do not learn in school

Next Steps

The information in this report will inform the PDAC's creation of its HRD Roadmap, which will guide the work of its HRD program and the association's efforts to address the human resource challenges the mineral exploration industry faces.

For further information on the work being done by the PDAC to address the human resource challenges, including the HRD Roadmap, please contact:

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ANNEX A

PDAC Student Initiatives

The HRD program was created in 2007 to attract students to the mineral exploration industry and provide support in the areas of education and training. Initial student activities included field trip funding, a financial contribution to the GAC Logan Student Chapter fund, scholarships and bursaries to various Canadian college programs, a student-industry networking event at the annual Convention and the creation of the annual Student-Industry Mineral Exploration Workshop (S-IMEW). In 2011 more resources were devoted to the program and it has been expanding to include the following student initiatives.

Student Outreach

PDAC organises presentations at various universities across Canada, given by industry volunteers who speak to geoscience students about the mineral industry and opportunities that exist for students in the industry, and through the PDAC. Outreach is also conducted via PDAC presence at national conferences.

Communications

The Association has a dedicated Student website that promotes PDAC initiatives for students, such as scholarships, bursaries, events at the annual Convention, S-IMEW, field trip funding and more. Web content is geared toward providing information about opportunities in the industry to students. PDAC is also active on social media by connecting students with industry information through Facebook (PDAC Students page) and Twitter (@PDAC_Students @the_PDAC).

Information is also communicated to students through the monthly e-news publication and the quarterly Core magazine that is distributed to the membership.

Financial Support

The PDAC provides financial support for students in the following areas:

- Supporter of the Mary-Claire Ward Geoscience Award – a \$5,000 award to a graduate student who's thesis supports mapping research in Canada
- Supporter of the Dennis R. Prince Memorial scholarship at Memorial University of Newfoundland
- Bursary agreements with ten colleges across Canada for \$1,000 scholarships each, to students enrolled in a mineral resource technology/mining program
- Dedicated funding, \$10,000 annually, to support academic geoscience field trips for Canadian post-secondary students
- Dedicated funding, \$20,000 annually, to help cover the travel costs of post-secondary Canadian student groups attending the PDAC Convention

PDAC Convention Student Program

The PDAC offers dedicated programming for students and recent graduates at the annual PDAC Convention. Events include:

- Student-Industry Networking Luncheon
This is the largest student event that attracted 1,000 attendees in 2013. It is a free event designed to facilitate networking between students, recent graduates and industry professionals.
- Guided tours of the Trade Show and Investors Exchange
In collaboration with CIM-Toronto Branch, PDAC organises industry led tours for students, of the Trade Show and Investors Exchange. Participating companies identify themselves as 'student friendly' and have an opportunity to inform students about their operations and projects. Each tour accommodates 10 students; twelve tours were organised at PDAC 2013.
- Student-Industry Forum
Hosted for the second time in 2013, this event brings together a panel of industry professionals from various sectors in the industry who share their journey, experiences and life lessons they believe students would benefit from. The floor is then opened up to students for a Q & A.
- Convention Kickstart
This event provides students with an overview of all Convention activities, specifically the student events. It is followed by a networking and résumé refresher, with tips for students to help them maximise their time at the Convention.
- PDAC-SEG Canada Mineral Colloquium
In 2013 the PDAC first sponsored this event that displays up to 100 poster presentations that highlight student research on mineral deposits.

Student-Industry Mineral Exploration Workshop (S-IMEW)

This is a free two-week workshop geared toward third and fourth year geoscience students at Canadian post-secondary institutions. Twenty six of the top students are selected and taken to Sudbury, Ontario, where they are immersed in all facets of the mineral exploration industry. A combination of lectures, demonstrations and field trips exposes students to geochemistry, geophysics, exploration mapping, government mapping, mineral economics, health and safety and CSR, resource modelling, and more. Students participate in underground mine tours, tour a smelter, visit core sheds and drill sites. The workshop includes a four-day field trip to Rouyn-Noranda and Val d'Or, Quebec, that exposes students to the Atibiti Greenstone belt. Networking with industry is a huge component of the program, in addition to three events that are open to all industry; students are given networking opportunities every evening. All workshops and sessions are led by industry volunteers, with over 65 volunteers involved in the program.

ANNEX B

STAKEHOLDER ENGAGEMENT - METHODOLOGY & PARTICIPATION

The HRD Roadmap outreach process involved the organization of roundtable discussions, in-person and telephone interviews conducted by the PDAC's Student Program Manager, and an online web survey during October and November. Through these outreach mechanisms the PDAC received input from 140 people.

The following questions were used as a general guide to inform discussions with stakeholders, and the questions were tailored to each stakeholder group (academia, industry, and students), using the following background data.

Background

In 2011, MiHR and PDAC conducted an extensive labour market sector study of the Canadian mineral exploration industry. The purpose of this research was to provide reliable, relevant and timely labour market information to support strategic workforce planning, and to stimulate a proactive approach to the human resource challenges facing the sector. The result of this work was the report; *Unearthing Possibilities: Human Resources Challenges and Opportunities in the Canadian Mineral Exploration Sector*. *Unearthing Possibilities* provided significant information on the demographic profile of the exploration industry, and the education and work backgrounds of the current labour force. This report revealed several Human Resource challenges under the broad headings of career awareness and attraction; recruitment; and retention, listed below.

Career Awareness and Attraction

- Lack of career awareness and general public awareness of industry
- Under-representation of key talent groups – women, youth, immigrants, Aboriginal peoples

Recruitment

- Thinning labour pool, particularly for geoscientists
- Short supply of job-ready candidates
- Mobility of labourers challenged by unrecognised, uncertified occupations
- Candidates lacking critical field experience
- Limited human resources of small and medium enterprises, which make up the majority of the sector

Retention

- Seasonal nature of work & high seasonal turnover
- Cyclical nature of the industry
- Mid-career attrition – preponderance of professionals leaving the sector in mid-career

- Age demographics – mix of aging workers and young professionals needing mentorship and experience with a thinning pool of mid-career professionals

With those challenges already established, the following questions were posed:

To Industry

Are there any other HR challenges you believe the industry is facing?

What do you think are the three most important challenges that need to be immediately addressed?

Do you have suggestions to address these challenges for the PDAC to consider?

Who should these solutions involve? Are there linkages that we can create with other groups? What role would these groups play? What value do they bring?

In what areas should the PDAC's HRD program focus its resources over the next five years?

To Academia

As an educator, what do you think are the most important challenges facing geoscience graduates as they seek to enter the industry? Do you have suggestions to address these challenges for the PDAC to consider? Who should these solutions involve?

Are there linkages that we can create with other groups? What role would these groups play? What value do they bring?

How do you think the PDAC can support educational institutions to help build a more robust mineral exploration industry?

In what areas should the PDAC's HRD program focus its resources for the next five years?

To Students

What do you think the PDAC should be doing to support students?

Do you feel ready to take on an entry-level position in the industry?

Is there a particular field that your education has not prepared you for?

How can the PDAC help you smoothly transition into the industry?

In what areas do you think your program/department needs support?

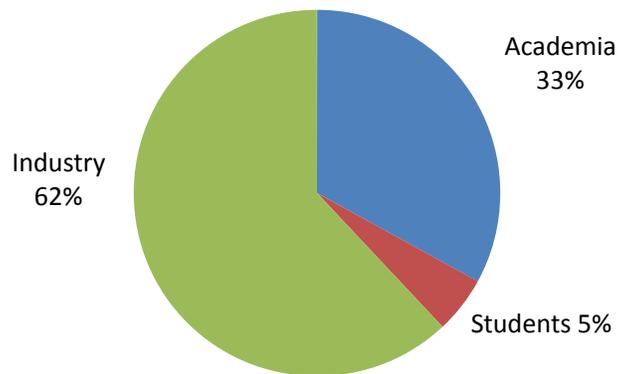
METHODOLOGY

Workshops

Ten workshops, structured as informal discussions, were held over the course of a two-month outreach process. Workshop locations were selected based on the location of large numbers of companies (i.e. Toronto, Vancouver), as well as the opportunity to organize sessions around existing events convening the mineral industry (e.g. Mineral Resources Review in St. John's NL).

In total 60 people participated in the HRD outreach workshops. The breakdown of participation by group is indicated below:

Workshop Participants



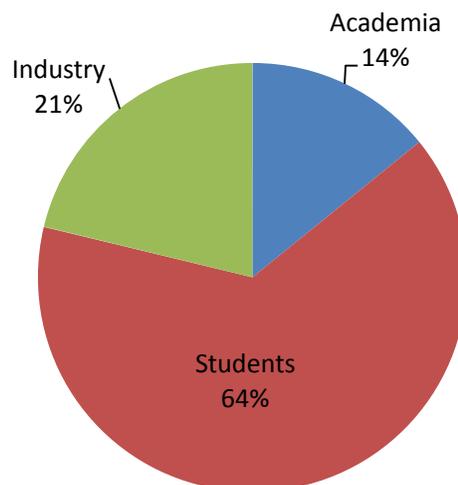
Interviews

Five interviews were conducted as part of the HRD Roadmap outreach process by the PDAC's Student Program Manager. These interviews followed the same informal conversational approach as the workshops and used the same general questions. Two of the interviews were conducted with individuals from academia and the remaining three individuals from industry.

Web Survey

The web survey was made available in English and was accessible online for a period of three weeks and was promoted through PDAC networks and social media. The breakdown of participants in the web survey by group is indicated below:

Survey Respondents



ANNEX C

CHALLENGES AND RECOMMENDATIONS

Other challenges (not listed in *Unearthing Possibilities*) that participants identified:

- Lack of industry training for new hires
- Job placement for students & new graduates – summer experience is critical
- Professional registration:
 - Decentralized provincial professional bodies limit mobility, especially for new graduates
 - Deterrent for foreign-trained professionals
- Lack of Human Resource/ workforce planning by companies
- Fewer economic geology courses/professors at Universities
- Underfunded Geoscience departments leads to fewer economic geology courses and professors,
- Public perception of the industry can be deterrent when attracting new workers

Recommendations on the role of the PDAC by participants (educators) in the HRD Roadmap outreach process

- Organise scheduled webinars/seminars for students to keep up with 'hot topics' in the industry
- Implement a national PR strategy to change and improve the public perception of the industry and raise awareness of the importance of the natural resources sector to the Canadian economy
- Work with industry partners on a more coordinated approach to job placement for students – specifically summer work experience
- Lobby university administrators (Presidents, Vice-Presidents, Department Heads) to continue to fund and increase funding for field schools
- Create a fund for university professors to bring in guest lecturers from industry, government and other universities to participate in graduate courses
- Lobby the Ministry of Education – there needs to be more high schools teaching Earth Sciences and all universities should have a mandatory first year Earth course
- Expand S-IMEW to include more than 26 students per year
- Support a roaming speaker series presented by professionals from industry to raise awareness of job opportunities in the industry
- Do more outreach to schools to promote awareness of the industry, the PDAC, the Convention and opportunities for students; not just limited to geoscience students

Recommendations on the role of the PDAC by participants (industry) in the HRD Roadmap outreach process

- Getting universities and industry more closely connected: ensure that students know what to expect of career in the industry before they graduate and increase student awareness of the industry and industry challenges
- Improve the awareness of the industry to the general public highlighting the diversity of the industry, and the positive environmental, community and social responsibility that industry players have shown; as well as the many ways in which natural resources are used in our everyday lives. Highlight the positive effects of Canadian involvement in improving regulations for health and safety and the environment.
- Work with universities to help prepare students for jobs in the industry via, training courses, field trips, and encouraging universities to adapt their curriculum to better meet the needs of the industry
- Promoting the analytical and problem solving creativity that jobs in the mining and exploration industries allow for and reinforce the job opportunities and demand for new workers
- Focus on the skills gap: with the current lack of jobs many geologists today graduate with little experience while the experienced professionals will be retiring soon.

Recommendations on the role of the PDAC by participants (students) in the HRD Roadmap outreach process

- Build bridges between students and industry: promote more networking and connect students with companies that are hiring
- Offer short courses about the basics of mining and exploration
- Encourage mentorship between industry professionals and students/young professionals
- Encourage equal opportunities for women
- Encourage companies to hire recent graduates and provide proper training which students don't have access to during university
- Encourage companies to take on students and recent graduates, especially during downturns, at lower pay or as interns to allow them to develop their skill sets to instill confidence that there can be a sustainable career path in the industry
- Offer short courses in software training and modelling programs that we do not learn in school; most university technology is outdated or too expensive for departments to obtain licenses to keep current with industry
- Liaise with universities and software companies to subsidise software licenses for university departments to train students on programs like Gemcom
- PDAC is doing a good job already – increase the advertising and outreach to students
- Expand S-IMEW to take on more students or do more S-IMEW's across the country
- Advertise job postings or co-op internship positions or email students directly
- More funding for students from the West Coast to attend the PDAC Convention

- Help graduating students with networking, job searching and landing a placement
- Help develop a more hands-on and industry based educational environment at Universities
- Provide more networking opportunities for students and graduates to connect with industry
- Create and host a job database that advertises job postings and allows employers to access resumes
- Set up a central pipeline between universities and industry to help students obtain valuable summer experience
- Offer short courses specifically for students to fill the gaps in knowledge that are not offered by most universities: advanced ore deposit geology, mineral economics, economic geology and mineral industry field skills
- More dedicated Q&A events, like the Student-Industry Forum at the PDAC Convention, will continue to help students gauge the reality of life in the industry
- Prepare students for the realities of working in remote locations
- Provide more programs, like S-IMEW, that teach practical skills that relate to the industry
- Convince universities to incorporate more field skills into our education, e.g. more than a one-week field mapping course
- Encourage companies to donate unused core samples (most students have never seen core before they graduate) and old equipment to university departments.
- Provide supplemental educational opportunities to complement our academic education
- Ensure that what students are learning in schools is preparing them for what employers are looking for
- Support collaborative field trips for students and industry – student societies usually don't have adequate funding or the industry support to successfully organise these trips
- Expose students to more options in geoscience: connect with student groups at universities and work together to bring in guest speakers from industry
- Provide more field trip funding
- Develop incentive programs for companies to hire young aspiring geologists and maximise their career development
- PDAC should have a larger presence within geology and mining engineering departments at universities and colleges to increase the awareness of opportunities for students in the exploration and mining industry
- Help develop/support co-op programs at universities and colleges
- Focus on being an industry supplement that integrates science and academia with industry knowledge
- Host a speaker series for geologists to speak at universities about recent interesting resource discoveries to get students excited about exploration and mining
- Highlight the various opportunities that a degree in geoscience can provide – not just field work but lab geoanalysis, lab work, research, etc.
- Provide more grants and scholarships for students
- Provide financial support for field-related studies in the field of economic/exploration geology, for e.g. SEG field trips

- Bridge the gap between education and industry: students do not know the types of jobs available to them, how to get them, who they should talk to, and the skills they need to do these jobs. Long term: they do not know what kind of lifestyle to expect and what varied career paths exist
- Host workshops/seminars at universities to educate students about the aspects of the industry that they do not learn in school
- Cultivate a presence in other professional services such as accounting and finance to ensure your stakeholder base becomes stronger in future years
- Increase awareness of geoscience programs to high school students as they are not aware of opportunities in the mining industry