IM4DC Evaluation of Impact: The Alumni’s Perspective

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Research aims:
This research sought to build on a previous evaluation of the impact of IM4DC programs on:
• Alumni
• Their workplaces
• Their networks and collaborations

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Summary of Action Research Activity

**IM4DC evaluation of impact: the alumni’s perspective**

This project is a continuation and expansion of a similar evaluation project conducted during later 2013 – early 2014 by the Accelerated Learning Laboratory of the University of Western Australia (see ‘IM4DC Evaluation of Impact – February 2014), to assess how the educational and developmental programs of the International Mining for Development Centre (IM4DC) have contributed to the improvement of practices, policies and cultures of targeted developing nations. It is hoped that knowledge generated through this project will assist IM4DC to conduct systematic reviews of previous programs and strategic planning for the future.

Semi-structured interviews solicited feedback from program alumni who attended IM4DC activities. The interview schedule was refined based on learnings from the previous evaluation and the focus of the interviews was to look at changes that alumni have implemented in their workplace, along with networks and collaborations formed. A larger group of alumni were contacted than previously, to enrich the diversity and coverage of participants. Initial contact was made with 139 alumni and interviews were successfully conducted with 30 alumni, representing a response rate of 21.58%. Participation was voluntary and responses from alumni were kept strictly confidential. 16 countries were represented in the sample. Alumni’s responses were transcribed and analysed. The data was mapped onto the key questions in the IM4DC Monitoring and Evaluation Framework and is summarised in the Executive Summary at the start of this report.

Consolidation of data from the two studies and online surveys indicated that IM4DC programs have indeed enabled alumni to translate learning into practice and to bring about positive changes to their work and organisations. Participants have developed their leadership capability, initiated innovative activities and changes, strengthened their networks, and can potentially contribute to the improvement of social, economic, environmental status of their home countries if more time is given and if continuous support is provided.

Recommendations are made for further enhancing impact, including; involving key personnel and decision makers in the IM4DC training; providing focused, systemic training to develop participants’ change management skills; following up with alumni to support their change initiatives; creating platforms to share innovative and effective practices among alumni, among others; and building cross-national forums and networks to sustain community of practice.
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1. EXECUTIVE SUMMARY

Successful training and development programs require thorough, rigorous and timely evaluation of their effectiveness in order to assess to what extent learning objectives have been met. To perform an effective evaluation, it is vital to not only gather participants’ initial reactions and perceptions about the program, but also identify changes in their behaviours and actions as well as the resulting impact.

This current project is a continuation and expansion of a similar evaluation project conducted during later 2013 – early 2014 by the Accelerated Learning Laboratory of University of Western Australia, with the aim to assist the International Mining for Development Centre (IM4DC) to understand how its educational and developmental programs have contributed to the improvement of the practices, policies and cultures of targeted developing nations. It is hoped that knowledge generated through this project will assist IM4DC to conduct systematic reviews of previous programs and strategic planning for the future.

As the protocol has been set and approved in the previous project, this year’s evaluation adopts the same methodology; that is, using semi-structured interview approach to solicit feedback from program alumni who attended IM4DC activities. The interview schedule was refined based on learning from last years’ experience, yet is still mapped to the key questions posed in the IM4DC Monitoring and Evaluation Framework. In this year, a larger group of alumni were contacted and invited for the interviews to enrich the diversity and coverage of participants. Initial contact was made with 139 alumni and interviews were successfully conducted with 30 alumni, representing a response rate of 21.58%. Participation was voluntary and responses from alumni were kept strictly confidential. In this year, 16 countries were represented in the sample (compared to 12 in the previous year). Alumni’s responses were transcribed and analysed. The data was mapped onto the key questions in the IM4DC Monitoring and Evaluation Framework and is summarised in this report.

Same as last year, the focus of the interviews was to look at changes that alumni have implemented in their workplace. In brief, the results from the interviews indicate that participants reported initiating and implementing positive changes. Analysis of these changes suggested that changes were initiated and/or development occurred at all levels including: changes to individuals themselves (e.g. development of a new mind-set, changing work methods); changes to their teams/workgroups (e.g. training team members, increasing collaboration and teamwork); and changes to their organisations (e.g. building networks and engaging external stakeholders, setting up new mining-related facilities). These findings are similar to those from the previous year and suggest active engagement and strong motivation amongst IM4DC alumni in terms of transferring learning back home to improve their work practices. While it is still at the early stage for more transformational changes to take place and for broader social, economic and environmental impact to be generated, we have observed signs that some alumni were attempting to improve education, policies and regulations in their
respective job areas. If similar activities continue to happen and if more staff can be trained up to the level as the alumni, positive transformations and long-term impact are likely to take place.

The interview data suggests evidence of competencies in alumni’s leadership capabilities, particularly in terms of the interpersonal aspects of leadership, such as developing networks, managing human capital, influencing others and leading one’s team. There is also evidence that many of the changes that alumni have initiated can be considered as innovative, and most of the changes were already at the implementation stage, which is a more mature stage of the innovation process. This suggests that alumni were able to quickly act on their initiated changes and pushed through to make them happen.

We also asked alumni about the types of networks and collaborations that might have been formed as a result of attending IM4DC programs. Similar to the previous year, we observed the formation of various types of networks, with particularly strong focus on local network groups and communities. Relatively fewer networks have been formed and maintained across country boundaries, which is likely caused by constraints in cross-national communications, and challenges of cross-cultural communication. Our interviews suggest that IM4DC could potentially focus on strengthening cross-country networks to foster collaborations and partnerships that have broader impact.

While the examination of the above areas provides similar results as the previous year, some additions of this year’s project should be noted. First, we included online survey data collected from alumni’s colleagues, who reported the quality of alumni’s changes (See Section 7). Despite we only obtained a small sample, findings from this survey confirmed that the changes engaged by alumni were “wise” in nature, for instance, the changes were appropriate for the organisational context and were beneficial to others. Second, we collated the 6 months’ alumni follow-up survey results collected by IM4DC over the last 2.5 years (See Section 8). Our analysis of these data suggests relatively similar findings as found in the interview study, such that many alumni have engaged in changes across individual, team, and organisational levels. A substantial amount of changes reported in the follow-up survey occurred at the organisational level and beyond, suggesting positive and broad impact being created for the alumni’s work environment.

Overall, by consolidating various data source including two years of interview study, two and half years of 6-month alumni follow-up survey, and online survey data collected from a small portion of alumni’s colleagues at work, we found that IM4DC programs have indeed enabled its alumni to apply the learning into practice and to bring about positive changes to their work and organisations. Our analysis suggests that participants have developed their leadership capability, initiated innovative activities and changes, strengthened their networks, and can potentially contribute to the improvement of social, economic, environmental status of their home countries if more time is given and if continuous support is provided. We nevertheless make recommendations for further enhancing the impact, such as: involve key personnel and decision makers in the IM4DC
training; provide focused, systemic training to develop participants’ change management skills; follow up with alumni to support their change initiatives; create platforms to share innovative and effective practices among alumni, among others; building cross-national forums and networks to sustain community of practice. These initiatives would collectively facilitate the achievement of transformational changes in the targeted countries over time.

Disclosure:

We would like to acknowledge that the Accelerated Learning Laboratory at University of Western Australia (ALL@UWA) who produced this report is involved in the design and delivery of the annual Occupational Health and Safety short course for the IM4DC during 2012-2014.

However, to minimise the impact of such involvement on the results of this evaluation, we invited staff who were not involved in the delivery of the Occupational Health and Safety short courses to engage in data collection for the interviews. In addition, only a small portion of the interviewees (6 out of 30) was attending the Occupational Health and Safety short course.
2. **PROJECT BACKGROUND AND METHOD**

### 2.1 Project aims

Established in October 2011, the International Mining for Development Centre (IM4DC) organises and delivers a variety of mining-related courses, programs, and activities every year. The main purpose of these courses is to lift the quality of life in resource-rich developing countries, through developing the knowledge, skills and capabilities of key personnel in those nations.

As reported by IM4DC, by the end of December 2014, IM4DC had delivered short courses, workshops and study tours for over 2,314 participants from 65 developing nations, providing training support across mining-related industries in Africa, Asia and Latin America.

Feedback from alumni of these courses and initiatives has suggested positive outcomes from engagement in IM4DC activities, and the demand for IM4DC programs is continuously growing. However, IM4DC was also keen to undertake systematic and ongoing evaluations of its programs, to generate concrete, first-hand knowledge about the impact its programs have achieved in terms of improving the practices, policies and culture of the targeted developing nations.

To meet this aim, IM4DC partnered with the ALL@UWA at the end of 2013, to engage in a program evaluation study by conducting in-depth, semi-structured interviews with 25 alumni from 12 countries. Feedback from that evaluation suggested positive results alumni have generated at their workplace. Recognising the need to expand the study to reach out a broader scope of alumni and to continue understand the impact of its programs, IM4DC decided to conduct a further evaluation study with ALL@UWA using the same methodology. Furthermore, IM4DC intends to consolidate the interview data collected from two years, together with other information collected from the IM4DC alumni follow-up survey, in order to comprehensively review the impact of IM4DC programs, understand the extent to which intended outcomes have been achieved through these programs, and conduct strategic planning for the future.

### 2.2 Research methods and processes

We conducted this project through three key stages. A roadmap of these stages with associated timeline is illustrated in Figure 1, and more details about each stage are provided below.
1. **Prepare for interview data collection**: The interview schedule and protocols were adapted from that used in 2013 – 2014, which involved extensive consultation with IM4DC directors, key staff members and by matching key outcomes to the *IM4DC Monitoring and Evaluation Framework*. The process and background of the construction of the initial interview schedule can be located in the Evaluation Report 2014\(^1\). Drawing on the learning and experiences from last year, interview questions were refined in order to simplify the questions, allowing them to be more easily understood by alumni.

2. **Undertake telephone interviews** that are aimed at collecting information for understanding the achievement of program outcomes. This involved:
   
   a. **Collate alumni contact list** from IM4DC and arrange interviews. A total of 139 alumni were initially contacted via email from IM4DC about the interview, and then followed up with a phone call. Thirty of them responded and agreed to participate in the project.

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b. Schedule interviews with the 30 alumni who agreed to participate. Due to time differences interviews were scheduled to accommodate alumni’s convenience and availability.

c. Conduct telephone interviews, mostly conducted in the last 2 weeks of October 2014 with a few conducted in November 2014. Interviews were successfully conducted with all thirty alumni. All interviews were audio recorded so as to comprehensively retain the data. A total of six interviewers were involved in conducting the interviews; all of them were trained Industrial/Organisational Psychologists and experienced interviewers.

d. Transcribe and summarise interview data, mostly during December 2014. This involved a two-step process. Firstly, all interviews were professionally transcribed. Following that, all interviews were analysed and results were summarised by the core team members of this project.

3. Synthesise findings, integrate other information and produce project report

a. Level 1 Analysis: Integrate interview data in accordance with designed interview questions.

b. Level 2 Analysis: Re-analyse the data to map onto the key evaluation questions as specified in the IM4DC Monitoring and Evaluation Framework document.

c. Analyse the 6-month alumni feedback survey data: Compile previous years’ alumni feedback survey data and analyse them based on a similar framework adopted in the interview study.

d. Summarise and write up report. The report is organised by the key evaluation questions, with answers corresponding to each question and cases, stories, and participants’ quotes provided as evidence. We provide a separate section to present the findings from the 6-month alumni feedback survey.

2.3 Summary of Participants

Among the 30 alumni that successfully completed the interviews, 21 were male and 9 were female. The interviewed alumni come from a range of countries as shown in Figure 2a. Overall, there was relatively even distribution of participants from different countries, which was an improvement over the previous year’s study (Figure 2b) as a result of our deliberate inclusion of people from diverse cultural background. Together,
over the two years Indonesia, Philippines, Ghana and Zambia were the four countries that had the highest participation rates from alumni.

![Percentage of participants from each country in 2015 Evaluation](image)

**Figure 2a: Percentage of participants from each country in 2015 Evaluation**

![Percentage of participants from each country in 2014 Evaluation](image)

**Figure 2b: Percentage of participants from each country in 2014 Evaluation**

Alumni were also from a range of organisations, which can be broadly categorised as universities, government organisations and non-governmental organisations (NGOs). The range of organisations was compared to results from 2014 Evaluation. As can be seen in Figure 3, there were more alumni from government organisations in 2015 compared to 2014, yet not as many from NGOs as last year. The numbers of alumni from universities were rather similar between the two years.
Figure 3: Comparison of frequency of alumni from Universities, Government Organisation and Non-Governmental Organisation in 2015 and 2014
3. INTERVIEW FINDING PART I. HOW SUCCESSFULLY HAS IM4DC ACHIEVED ITS OUTCOMES

3.1 The instigation of transformation change

Original question in the IM4DC Monitoring and Evaluation Framework:

To what extent have our participants instigated transformation change because of things they have learnt throughout the program?

We addressed this question in a two-stage process. In the first stage, we attempted to summarise the changes that the participants reported to provide systematic account of the initiatives that they introduced as a result of participation in IM4DC programs. In order to do this, we classified the changes that were targeted at three levels: individual, team and organisational; within each level, we discussed the types of changes that were identified.

In the second stage, we tried to focus more on the “transformational change” that is of particular interest to the IM4DC. At this stage we consulted existing literature to understand the characteristics that separate transformational change from other types of organisational change and reanalysed the initial data based on these characteristics to be able to formulate conclusions.

We start by providing a comprehensive account of the changes that were reported by the alumni.

The three levels that we used to classify changes were:

1. **Individual level changes**, which are local changes that alumni have engaged in for themselves. For example, making changes in terms of how they carry out their work.
2. **Team level changes** include changes intended to affect the groups or teams in which the alumni work. For example, making changes about how their team functions.
3. **Organisational level changes** include more strategic changes targeted at the organisation as a whole. For example, implementing new policies or changing the educational courses within their organisations.

We counted the frequency of changes at each of the three levels. All alumni had reported initiating at least one change as a result of engagement in IM4DC activities during their interview. However, some participants had reported up to three changes. As shown in Figure 4a, there tend to be more changes at the individual level, followed by organisational level. This could potentially mean that the IM4DC programs have prompted alumni to focus on individual changes first, before moving onto higher-level changes. However, these changes are not necessarily exclusive of each other, as
Individual changes could have a flow-on-effect onto broader level changes such as team and organisation.

![Frequency of changes at each level](image)

**Figure 4a: Frequency of changes at each level**

Below we provide more details about the actual change activities that IM4DC alumni reported that they initiated and implemented at their workplace.

1. **Individual Changes.**

   - *Changes in the way of thinking and approaching work* were reported by some of the alumni. A number of alumni had stated that IM4DC had broadened their horizon and opened their eyes to perform their work in different ways. For instance, an alumnus stated:

     "I think, inter culture experiences that you learn from the others as well as the significance of the training....that your horizons really broadens; you know as you see people, as you see organisation, as you see leadership...and I think that has an effect."

   - *Increased personal knowledge, skills and networks* were mentioned by many alumni. These ranged from increased knowledge and experience in performing their work to better communication and interaction with other people.
'The training really helped me work with the geographical charts to understand how to put them together and interpret the results. It really improved my knowledge of the charts. I feel like I am much better at putting the information together in order to provide high quality information to the technicians for their work.'

'I was part of the Life of Mine 2012 course. As a result of it, I was able to interact with people of the Environmental Agency, especially in issues related to acid drainage.'

- **Changes in how the individual conducts their individual work** was the third area of individual change mentioned by alumni. Some alumni spoke about incorporating new materials they had learned into their courses, while others spoke about trying to teach more practical knowledge to others and ensuring that the risk of everything they do was evaluated.

- ‘Being the head, being the program leader, I took it to really make it a point to introduce the things that we learnt, from the training that I got in environmental management and mining through IM4DC.’

- ‘I now concentrate more on specific industries and their relationship with society and environment. I am doing more applied work [with these organisations].’

### 2. Team Level Changes.

- **Organising workshops/training/presentations to transfer knowledge to colleagues and stakeholders** was the most frequent mentioned team level change. The training / workshops ranged from individual presentations to colleagues about certain topics, to arranging team-level workshops for organisations. For example, one alumnus spoke about a workshop he organised for his colleagues in order to educate them on the topics he had learned at his course:

  ‘When I returned from Australia, the first thing was to teach my team and make some recommendation on what we need to adopt, what we need to share, what we need to go forward.’

- **Building safety awareness/changing the mind-set of colleagues** were another common change that alumni described. One alumnus particularly spoke about safety changes in the office. This was conducted through various methods.
‘I put the symbols of safety at work in areas, like when they have to use the helmet, when they have to use the gloves; I put the symbols everywhere in our office’ and ‘There was a video of accident or events that may happen if we are not concerned about safety, I sometimes used the video to show my office mates about safety.’

As a result the alumni spoke about the positive outcomes that came from this safety awareness:

‘In my office, many people now think safety is our first priority, because of the changes. Not all of the people, but many people now believe safety is a first priority.’

3. Changes Targeting at the Organisation and Beyond.

- Designing and implementing new academic courses was a frequent change mentioned by alumni, possibly because many alumni were in the educational and training-related roles. After coming back from IM4DC courses, many of those employed within academic institutions decided to implement new courses within their universities. Some alumni spoke about adding in topics regarding safe mining, while other talked about environmental security and the importance of it:

‘I suppose the first change that I proposed in my current program was implementing courses of environmental security...we didn’t have a course like that in environmental security and not the rules about security. It is incredible, but we didn’t have that.’ The first step involved changes to the curriculum. ‘We needed to change the curriculum, so we decided to restructure the document. This was important because if we didn’t have these changes in there, they probably would not pay attention.’

Despite the change being quite recent, the alumnus described some initial outcomes in regard to the change

‘People are more aware of it (environmental security) and the importance of this activity in general.’

Other alumni spoke about how new curriculums increased the practicality of education:

‘The new curriculum developed regarding Mineral Processing Technology was the most significant change as a result of attending IM4DC course. There was limited opportunity for students to introduce and try their theoretical education into
practice and into real life. We have been talking about solutions for many years. The training curriculum of the profession opens many doors for students to approve and experiment their theoretical knowledge in the field.

- Implementing new systems within their organisation was mentioned by a couple of alumni. Some spoke about implementing new health and safety assessments to ensure good working condition within the organisations, while others spoke about incorporating new ways of using up-to-date technology within their workplace. One alumnus explained the incorporation of Geographic Information System after attending the IM4DC program:

  ‘Using the Geographic Information system our team are creating, processing and disseminating digital data on mining.’ Specifically the alumnus spoke about the change at the organisational level. [Implementation of Geographic Information System] lets us quickly query or analyse a database and receive or send the results and data in the form of some kind of map.

- Building better relationships between the community and mining companies were mentioned by one individual. After attending IM4DC courses he was assisting negotiations between the community and organisations, with senior-level government officials being involved in some part of the process.

  ‘Communities are looking for my help in order to negotiate with the industry, so that was a surprise change in my type of work. In a sense, now the communities are looking for me instead of Non-Government Organisations or so, all this type of help in order to make an agreement with the industry...I intervened, I lowered the tensions, diffused the strike and now we are on the negotiating table with the office of the prime minister as witness of our negotiation. They also came looking for me and asking for help so the Peruvian government recognise their territory and give them proprietary rights; they have to negotiate with oil companies that have the concession over there.

- Influencing and engaging internal/external stakeholders was described by alumni. Commonly alumni organised workshops either for the local mining companies or government officials from various countries:

  ‘Since coming back [from IM4DC workshops] we organised two trainings sessions for local government officials. The purpose of this program is to have them, one share experiences and also learn something new, as most of these countries are in the processes of developing procedures [in relation to economic development].
Participants came from not only in Ghana but Uganda, Tanzania, Kenya, Rwanda and Somalia.

Others examples of this included educating small scale miners on safe mining practices. This was conducted by running a workshop/training session looking at the disadvantages to the environment from a mining point of view. The workshop was aimed at small scale miners, with the purpose of protecting the environment as much as possible.

- Propose new changes to legal framework/regulations were mentioned some alumni. Since attending IM4DC they had acquired better ideas of the environmental standards in Australia and how these can be applied to countries. The alumni stated that these changes were currently in progress to be reviewed:

  ‘We have told them [the mining companies] the bad and weak side of mining, and we have developed a regulation that would relate to their mining activities. So we are waiting for the government to approve this.’

  ‘Based on the knowledge and idea [that were obtained from IM4DC programs] and then with the support of the department, I stressed re-developing the mining regulations, which is already been finalised.’

Mapping onto “Transformational Change”

In this second stage, we went back to the scientific literature search on transformational change that we conducted for our previous report. The goal was to map the changes we described above against the main characteristics of transformational change as argued in the literature.

As stated in our previous report, we found the literature on this subject to be very diverse and poorly integrated (Chapman, 2002) transcending multiple levels from individual to societal. For the purpose of our reports, we chose to focus the mapping process on the organisational level. We considered this level to be the most appropriate as it is within the reach of participant’s actions and can be an indicator for the broader social impact that IM4DC is targeting.

Existing literature seems to converge around the idea that at the organisational level, transformational change can be equated to gamma changes (as described by Golembiewski, 1979) or second-order changes (as described by Watzlawick et al., 1974). This means that transformational changes are those changes that alter the existing culture of a system and the way that the purpose of a system is understood. It usually means a shift in the deep structures of a system: a reframing of attitudes, beliefs and
cultural values that generates a shift in the overall processes and strategy (Chapman, 2002).

Having this conceptualisation in mind, we reanalysed the changes that the participants described and found that none of them fully comply with the definition of transformational change, and many still revolve around traditional (alpha/beta or first order) changes. In other words, most of the changes that are initiated by the alumni are targeted at things that can be changed within the existing system boundaries: an extension of what is already done (e.g., implementation of new tools within the organisation like the Geographical Information Systems; changing colleagues’ attitudes towards safety within the workplace).

Nevertheless, we feel that some of the changes described within the interviews conducted this year bear the potential to lead to more transformational changes in the future. For example, changing the team mind set about safety being number one priority might potentially lead to a realignment of priorities at the organizational level and change the way the organization goes about its main activity. Also, including new criteria for evaluating mining companies has the potential to generate new models of interaction between mining companies, communities and government representatives. Last but not least, there have been signs that changes implemented by IM4DC alumni did have an impact on the relationship between communities, government representatives and companies, with communities acknowledging and using the networks and resources available for the process of negotiating with companies.

However, we need to note that transformational change would need to challenge existent system boundaries in order to produce profound, fundamental and durable shifts. This is not a simple process and requires not only complex interventions but also continued support and guidance for the alumni in their efforts to bring about change in their organizations or communities, including influencing important stakeholders. It is therefore encouraging to see changes that have the potential to reach transformational stages in the future. However, we feel that further support is needed to instigate transformational change, so the suggestions we have derived in the previous report based on the characteristics of transformational changes proposed by Chapman (2002) still apply:

a. **Transformational change is holistic (Nature and scope of organisations and the purpose of change):** transformational changes concern changes in the multiple overlapping and interconnected elements of organisational systems, rather than single, standalone units. Therefore, every level should be a target of change – from the individuals within every unit to the different units and organisations that compose a wider system. In this sense, IM4DC activities are partially aligned with the nature of transformational change in so far as they appear to facilitate change in individuals and to successfully bring together individuals from different but interconnected structures. In order to move towards transformation change, IM4DC should seek to facilitate the coordination of all
change initiatives within different subsystems and the creation of interlinks between individual organisations, their business partners and the broader society for a wider impact.

b. Change process (or Change strategy). At this level, there are two characteristics that separate transformational change from more traditional ones. The first one consists in primary change targets: Traditional changes usually have formal structures and systems, or existing processes or relations as primary targets. By contrast, primary change levels in transformational change are attitudes, beliefs and values. Here we could observe an initial step as many of the alumni reported changes in attitudes or values as one important outcome of the program, giving us reasons to believe that transformation changes do happen at the individual level but they are not fully translated into transformations at the organisational level yet (as indicated by the type of changes initiated at higher levels). Therefore, interventions should actively incorporate aims to build the types of social and interpersonal skills that would allow alumni to successfully translate or generate attitudinal changes broader in their organizations. The second characteristic of the process relies in the fact that stakeholders are involved in the change process and participate fully to it. Another encouraging sign at this level is an increased involvement of stakeholders that was reported by some of the participants. But overall, the changes that people have initiated in their workplace are still first–order changes, e.g., targeting at developing other people and improving existing structures through training and improved products/processes. To make change more transformational, IM4DC should consider ways in which participants could transfer the changes in attitudes, beliefs and values that they personally experience into the organisational level (although this year’s interviews highlighted some instances in which this transfer was partially realised). Sometimes such transfer is difficult with only a restricted number of change agents, thus active consideration should be given to ensuring a critical mass of change agents who would facilitate organisation/societal wide transformational change.

c. Change agents role: What separates transformational change from traditional changes with respect to change agent roles is the fact that all members of the organisation can act as change agents, not only people at the top. IM4DC practices reflect this strategy by inviting people at all levels of organisations to participate in their educational programs. However, transformational change still requires people from the top of hierarchies to enable and support change and provide visionary leadership, even if these people do not act as frontline drivers of change. In fact, this has been a theme that appeared when we discussed barriers to effectively implement change (see section 2.2). Therefore, IM4DC could more actively consider how to facilitate this kind of support from leaders at the top of the organisational hierarchy that is needed in transformational change.
Comparing level of changes with Evaluation Report 2014

To understand how IM4DC programs have impacted alumni overall, the changes were compared with those reported in the Evaluation Report 2014 and are summarised in Figure 4b. In comparison to the evaluation conducted in 2014, there was a slightly higher level of individual changes as reported in the current evaluation. This may be caused by two reasons: firstly, there were five more alumni being interviewed this year, and consequently more changes would be found at the individual level, the most fundamental level of changes. Secondly, it seemed that more alumni this year spoke about incorporating knowledge and skill into their work, such as adding in new materials, evaluating their work, among others. There were slightly less team-level changes this year, compared to the previous year, despite the content of team-level changes being rather similar. In regards to organisational changes, the current evaluation reported slightly higher frequencies, as it seems that more alumni were implementing new courses and organising workshops to influence mining companies and government officials.

Overall changes across the two years indicate that IM4DC courses have a significant impact on alumni and their changes carried out in their respective countries. Individuals changes were the most frequently reported changes, followed by organisational and team level changes. These changes demonstrate significant impacts as alumni have managed to achieve over a relatively short amount of time.

*Figure 4b: Frequency of changes at each level for both years*
3.2 Barriers to changes

*Original question in the IM4DC Monitoring and Evaluation Framework:*

*What were the barriers to achieving these changes?*

A number of barriers were identified by the alumni when they were trying to implement the changes they initiated. Our analysis suggests a number of key barriers and the frequency of them is reported in Figure 5a. Not all alumni had reported barriers, while some had reported up to three barriers.

![Bar chart showing frequency of barriers encountered by alumni](image)

**Figure 5a: Frequency of barriers that alumni encountered in implementing change**

**Different Types of Barriers**

- *People resisting / not accepting change* was the most common theme that was mentioned by alumni. A lot of the alumni spoke about individuals being set in their old ways and hard to accept any new changes. For example:

  ‘When you bring a change people try to resist because everyone likes the old habit….so if someone brings a new habit it’s quite hard.’
'Sometimes I think we are dealing with, possibly the minds of the people, you will find that it might not be easy for someone to quickly accept what you want to do.'

Another alumnus stated that sometimes their changes were not accepted/or overcome from senior people within their team:

'Most times you have senior colleagues who feel intimidated by younger, more assertive colleagues. They try to possess your idea or they just try to drown it.'

- **Lack of appropriate funding** was another common theme that had emerged among alumni. Several alumni mentioned that their organisation did not have the money to adequately bring about the change they intended. Others mentioned that it was difficult to run programs due to the lack of funding that was available.

- **Rigid structures in place within organisations.** Two alumni spoke about organisations being quite restrictive in structure and processes.

  'One of the challenges is, because sometimes the budget is already approved for one year and then during the midterm review, there are things that need to be integrated; so you have to work with the budget. Of course because we have more activities and the budget is restrictive.'

Another alumnus spoke about the rigid structure of the organisation that excludes the support of any change or any workshops that they want to attend.

'They’re not going to release funds...if they don’t feel like they are going to make money out of it....neither will they commit or release funds for you to rent one, so it kind of cripples such ideas or work.'

- **Lack of technological resources** was another common theme mentioned by alumni which resulted from lack of funding. Alumni spoke about not having the adequate resources to carry out certain changes.

'I need more computers in computer lab. And we have just 20 computers. And every autumn semester I have about 80 students and this computer lab is not enough for my students; I need extra time to teach them in computer lab especially in mining programs.'

'We need to have specific resources for the change. For example risk management, GIS management systems, we need computers for all that, we need the software.'
Others had stated that there was a lack of skill/knowledge from others who did not attend the course. Some changes the alumni proposed involved their colleagues understanding key terms in English which was not always possible. One participant stated:

‘Most of my colleagues do not know the English language or technical terms in English from mining activities.’

Engaging stakeholders was another common obstacle described by the alumni. To carry out the change they had wanted, various amount of people needed to be involved. For example, one alumnus spoke about how hard it was to engage their stakeholders and carry out the necessary change:

‘There was one person that has a very important position in the Environmental Agency that was very rude, did not want us to work together. When he asked for information from our agency, he did it in a very un-polite way.’

Other people spoke about getting others on board was hard due to many past/failed events and history related to mining:

‘Probably, it is because we do not have a good history over mining in this country. This is because of irresponsible mining activities comfort our efforts to convince people that there is such irresponsible mining in this country. So, there are also these obstacles that come from the cultural and historical background.’

Four alumni did not identify any barriers.
Comparing barriers of change with Evaluation Report 2014

Some of the barriers as mentioned were similar across the two years, as reported in Figure 5b, with the most common barrier being people resistance. Lack of funding, lack of skill/knowledge and engaging stakeholders were also frequently mentioned in both years. Lack of technological resources and rigid structures of organisations were not mentioned in the previous year. These newly emerged barriers may have been more prominent in the current evaluation as majority of the alumni were from government organisations, where lack of technological resources and rigidly fixed processes may be more commonly found.

Overall, as can be seen in Figure 5b, the barriers identified over the two years show that there are potential support and assistance IM4DC could provide to help alumni overcome such barriers. For example, IM4DC could provide trainings to program participants so that they are equipped with the knowledge and skills to overcome the resistance from individuals and to engage stakeholders. It is also useful to facilitate people be innovative and creative in resolving barriers such as lack of funding and resources. These barriers should be taken into account when designing IM4DC programs.

Figure 5b: Frequency of barriers that alumni encountered in implementing change for both years
3.3 Ways to overcome the barriers

Original question in the IM4DC Monitoring and Evaluation Framework:

What was done to overcome the barriers?

Despite a lot of participants not stating how they had overcome their barriers, a few participants mentioned a couple ways they tried to get around the barriers. For example:

- One individual spoke about limited funding for resources and ways to get around that:

  ‘The major obstacles were limited funding sources and small accommodation of the laboratory. Since, good quality equipment developed in Australia, USA, and Europe are very expensive, we decided to buy equipment from China.’

- When it comes down to trying to persuade colleagues and stakeholders, alumni experienced many barriers. To overcome this, many of them mentioned different way of communicating to influence people and trying to relate to colleagues in such a way that they will understand why changes may be necessary:

  ‘I think we have to communicate with them often and try to relate, so that’s what the best thing that I can do - relate and try to ask them what they are doing.’

  ‘The main obstacles are surrounding the understanding of the person. Not a machine, a person... So the only way to overcome is to reason with them. If the right person can understand then everything else will be alright. And how to make that person understand is more training and more education.’

In response to colleagues feeling intimidated by alumnus, one suggested that:

‘You have to be really diplomatic and usually try to make them feel that they’re – they’re not overridden.’

- Speaking to alternative people was also mentioned as a way to overcome barriers. When an alumnus was faced with stakeholders that were not responding positively, he tried to get around this particular difficulty and find someone else that would be more positive and supportive of the change in the environmental agency.

‘There was one person, that has a very important position in the Environmental Agency, that was very rude, did not want us to work
The Accelerated Learning Laboratory

Overall, similar to the finding in the previous year, alumni reported some strategic approaches about working with and getting around some of the barriers, especially in terms of overcoming resistance from people and trying to convince them of the change. However, given the prominence of this barrier, alumni may benefit from more targeted learning of effective strategies in influencing people and engaging stakeholders.
3.4 The development of leaders

Original question in the IM4DC Monitoring and Evaluation Framework:

To what extent has IM4DC developed leaders for mining development?

In order to examine whether IM4DC has developed “leaders for mining”, the same leadership framework was followed as used in the 2014 evaluation. Briefly, the framework posits three key leader competency categories: conceptual, interpersonal and technical/administrative. The conceptual dimension refers to competencies such as strategic thinking, generating new ideas, making decisions; the interpersonal dimension concerns competencies such as interacting, influencing and leading others; and the technical/administrative dimension includes areas of managerial work dealing with traditional functions and businesses (please refer to Figure 6).

| Conceptual | •Managing decision making processes  
| Interpersonal | •Managing human capital (working better in teams and developing networks and relationships)  
| Technical/administrative | •Managing administration and control  
|  | •Dealing with traditional functions of the business (procedures and processes) |

Figure 6. The three leadership dimensions (Adapted from Dierdorff et al., 2009)

Following this framework, the interview data was re-analysed to see how changes reported by alumni can be mapped on these three leadership dimensions. Similar to the previous year, the nature of the data collection method did not allow a direct assessment of alumni’s leadership changes on these competencies before and after the program. Therefore, we had to rely on the behaviours involved when alumni reported change activities, in the hope that such behaviours could be reflective of their leadership development.

We coded the alumni’s reported behaviours into the three categories. For instance, behaviours such as making an influence on key stakeholders or changing colleagues mindsets were coded as interpersonal; behaviours such as conducting environmental
assessments and changing the way work is carried out were coded as technical/administrative; implementing new safety program and assessment systems was coded as conceptual because of their strategic focus. After coding the data into these three dimensions, we counted the frequency of each dimension that alumni had demonstrated in their change initiatives and the results are reported in Figure 7a.

![Figure 7a. Frequency of alumni’s demonstrated leadership competency](image)

As it can be seen, most alumni demonstrated leadership competency in the interpersonal dimension. This suggests that the IM4DC programs provided a sound platform for participants to influence other individuals when leaving the program.

These results suggest that IM4DC programs have developed leaders in mining, or are in progress of doing so. The higher-level strategic conceptual dimension was not as frequently displayed. This dimension is vital to achieve transformational change in the long run. IM4DC could consider placing more emphasis on supporting alumni to engage in more strategic and innovative leadership behaviours at work.

It is important to note that this analysis is based on self-reported data drawn from the change stories provided by the alumni. Therefore, it is crucial not to draw final conclusion that these results indicate effective leadership. A broader range of data collection tools should be used to verify this, such as by collecting feedback from supervisors and colleagues, which has been conducted in this project to a moderate extent. In the later part of this report we will report finding from a short survey which was completed by a small number of alumni’s colleagues and supervisors.
Comparison of leadership development across 2014 and 2015 Evaluations

The results about leadership development as found this year are similar to that of last year. Overall the interpersonal dimension has the highest frequency over the two years. This could be because the interpersonal dimension of leadership is very achievable for alumni coming out of the IM4DC programs. However, conceptual and technical involve higher level leadership behaviours that alumni are yet to reach, or may not be equipped with the skills to do so.

Figure 7b. Frequency of alumni’s demonstrated leadership competencies for both years.
3.5 Innovation in mining for development

Original question in the IM4DC Monitoring and Evaluation Framework:

To what extent has IM4DC contributed to innovation in mining for development?

Organisational innovation can be defined as “the intentional introduction and application within a role, group or organisation of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organization or wider society” (West & Farr, 1990 p. 9 Anderson et al., 2004). Innovation involves the implementation of something ‘novel’ that is also useful.

Using the definition of innovation above, the changes answers alumni provided were analysed to see how many described changes or actions fit this definition of innovation. What we found is that most changes that were described by the participants could fit this definition and could be considered instances of innovation. As a result, a total frequency of 28 instances of innovation has been identified.

Innovation was further broken down to consider certain characteristics of innovation which can be of an interest for this particular concept. This was conducted to understand instances of innovation in more depth.

- The first characteristic that we considered was whether the innovation described concerns the production of new ideas or the application of existing new ideas or products. The results showed that all innovation instances (N=28) were found to represent cases of application of new ideas/knowledge/technology relevant to the alumni’s countries. Most of the innovations took effect at the organisational level (N=19), though the team level (N=4) and the individual level (N=5) were also represented in the examples discussed.

These results were compared to those reported in the Evaluation Report 2014. As we can see in Figure 8, the total amount of instances of innovation recorded this year, were slightly lower compared to 2014. This is because majority of the changes described at the individual level this year did not meet the definition of innovation (e.g. increased understanding of own work). Regarding the levels at which these innovations took place; present results are similar to those of last year, where organisational level changes were the most frequent.
The second characteristic of interest was the stage of the innovation process. We tried to distinguish between innovations at the stage of adoption (discussing/deciding to adopt something new) or at the stage of implementation (the specific innovation is already introduced into the organisation to a certain degree). Analysing innovation instances, we found that all but two innovations described were in the implementation stages. These results were very similar to those from last year, where all but one change were in the implementation stage. This suggests that the organisations where alumni work may be open to introducing new ideas and processes, and that alumni themselves may be eager to create change and thus quickly transitioned from the adoption phase to the implementation phase.

The last characterises that we were interested in regarding innovation was to look at what specifically has been introduced in the alumni’s countries, as a result of the IM4DC programs. The distinction was made between process (i.e. an innovation regarding the way things are done at that specific level), and products (i.e. an innovation in the things that are done at a specific level). The data revealed a good balance between innovations in process (N=13) versus products (N=15). As seen in Figure 9, compared to 2014, products and processes were both less frequently mentioned this year. This was due to fewer changes being considered instances of innovation this year compared to 2014.

Figure 8: Frequency of innovation in both years
Going beyond this quantitative picture of the innovations, we took a closer look at what it is usually adopted in participants’ organisations. Therefore, we tried to look at those types of innovations that are reported most frequently. For example the organisational level, there were significant innovations mentioned at the level of products. Two trends were identified. The first consisted in the incorporation of knowledge and information acquired in IM4DC programs into new and improved course units and curriculums, which was also present in 2014. The other trend that was not present in 2014 consisted of adopting/developing new regulations and standards. This could be due to the higher number of government representatives in our sample, who deal with regulations and standards as part of their daily work.

At the individual level we could identify another common trend: most of the participants who reported innovation at this level reported the adoption of including and adopting the knowledge and skills into their everyday work and changing the way they carry out this work.

At the work group level the trend evidenced by our data shows that the actions of participants are targeted at the dissemination of new knowledge and work methods among the existent colleagues in an attempt to improve work practices and process. This dissemination of new knowledge and work methods was not only around technical/skills training, but also around attitudes/beliefs, which is important for furthering transformational change (e.g. educating colleagues in terms of safe practices and attitudes towards safety within the workplace).
Overall, we can conclude that the participation in IM4DC programs contributed to the innovation in developing countries. New ideas and products have been successfully implemented in organisations, and have had a lot more support, as opposed to resistance. IM4DC should support innovations within developing countries, as alumni are capable of transferring these innovations from the program into their organisations.
3.6 Contribution to governance and accountability

Original question in the IM4DC Monitoring and Evaluation Framework:

What evidence is there that IM4DC has contributed to improved governance and accountability through effective and transparent regulation and management in extractive industries?

To answer the following question regarding the IM4DC’s contribution to governance and accountability in developing countries, we first observed whether the alumni where in such a position where they could influence governance and accountability. We further analysed the type of changes these individuals reported as a result of participating in IM4DC courses and whether these changes translated into better governance. For people who came from backgrounds other than government, we analysed their changes to see if they had an implication for governance in their respective country.

Our data analysis revealed that out of the total of 30 alumni that were interviewed, over two thirds (N=21) were representing governance bodies in their own country and implemented changes in their respective organisations. Some of the other participants (N=2) who came from academic institutions, also reported changes that impacted upon aspects of governance and accountability.

The most common trend found in data reported by participants working in governance related to changes/amendments to the proposed processes and regulations in relation to mining and the environment, and improvements in individual work. Many alumni spoke about returning home from IM4DC activities, and being better able to evaluate their countries’ processes and regulations, and to develop new regulations and standards that can be aligned with developed countries. The amendments/changes to processes and regulations ranged from changing environmental standards to ensuring that mining regulation reflects safe mining in terms of safety and the environment. One alumnus spoke about coming home after the IM4DC program and discussing with his team the mining regulations in Australia and what needed to be updated in his country. Together with his team they wrote a proposal which redeveloped the mining regulations and provided recommendations on what they needed to adopt. These changes are currently being finalised.

Besides the development of workshops and training, developing new tools to assist in the work of the institution has also been reported, examples including new geographical information systems that assist in the certification and inspection process and new safety assessment/programs. One alumnus spoke about introducing the geographical information system into his organisation and how it had changed his work. By using this tool he no longer needs to go out to the field to identify the forest degradation, he can see this from the spatial data they have available on the tool.
Many of the participants also spoke about successfully developing or administering workshops aimed at educating organisations or government departments in regards to safe and responsible mining. One example was discussed in relation to safe mining activity, to ensure that small scale miners are aware of the risks when carrying out their work underground.

Lastly, participants who were not working for a government operation but had changes related to governance and accountability referred to specific ways of increasing coordination between government organisations and themselves. For example one alumnus spoke about the importance of communication and coordination between his work and the government enterprises, as they have a great impact on his work and any changes that he may be carrying out.

In comparison to Evaluation Report 2014, the changes reported by alumni working for government organisations were quite similar, with only one major difference. In the current evaluation report many more changes were reported from alumni belonging to government organisation. Accordingly, a total of 23 changes were reported that contribute to governance, as opposed to 14 reported last year. The nature of changes being reported, however, was rather similar. Reported use of new tools by the organisation, improvements to individual work, and improvement to policy and regulations, were frequently mentioned by alumni from government organisations in both years.
3.7 Contribution to social, economic and environmental outcomes

Original question in the IM4DC Monitoring and Evaluation Framework:

What evidence is there that the IM4DC has contributed to strengthened economic, social and environmental outcomes from mining in developing countries through education and training?

What evidence is there that IM4DC has contributed to implementation of policies and process in partner countries that ensure that resources development results in substantial, inclusive and sustainable socio-economic development?

Same as last year, these questions are much more difficult to answer compared to other questions. First, there seems to be a relatively short amount of time that has passed since alumni have attended IM4DC activities, therefore making large-scale changes in relation to social, economic and environmental outcomes is difficult. Second, it becomes difficult to distinguish the outcomes the alumni have achieved and attribute them exclusively to IM4DC activities, as their outcomes could result from many social and cultural processes dynamically interplaying over time, with the participation in IM4DC activities being just one of them.

Analysing all the interviews reveals that most often people reported outcomes of the changes that were based at the individual level, such as adopting different way of doing their work or being more self-aware of the issues impacting their work and their environment. There were some alumni whose described outcomes seem to point to the potential of positive social, economic and environment development in future. These include changing environmental / mining regulation and convincing stakeholders / community in terms of safe mining and environmental assessments:

‘We have positive consequences because the reason the wastage, the damage they are causing for [the environment] is going to be in the limited quantity, because, before we do not have laws, now we have laws and that laws will lead the miner to reduce their activities, the negative activities.’

‘Now it’s a slow process but at least you can see things getting better. Now I’ve taught a few of my younger colleagues how to review environmental impact assessment documents better...so there actually is improvement in that regard’

Others spoke about initial outcomes that they have seen in terms of the behavioural changes of miners. For example one alumnus talked about the outcome of training miners to evaluate and manage their own risks.
'But we are beginning to see their change --- for example, working under ground and seeing what dangers could be here, and seeing what they can do about it.'

Other social, economic and environmental outcomes that were not directly mentioned can be inferred from the changes described by alumni. Some alumni spoke about convincing people about responsible mining regulations. One alumnus described the following, indicating that long-term outcomes may be present in future:

'We were able to gather at least 235 small scale miners. After the workshop, they have formed; they started forming an association [in regards to safe mining regulations].'

Similar to the results found in the Evaluation Report 2014, we can conclude that the macro-level outcomes of participation in IM4DC activities are not yet easily visible, especially within such a short time frame. These changes cannot occur until individual, team and organisational level changes have occurred. It suggests that these changes should be tracked over time to see what outcomes would result from these changes. Constant follow-up will not only ensure that alumni are kept on track, but that these macro-level outcomes can eventually be achieved.
4. Interview Findings Part II. To what extent does IM4DC model improve outcomes by facilitating collaboration between stakeholders

4.1 Network, partnerships and communication

Original question in the IM4DC Monitoring and Evaluation Framework:

To what extent have networks, partnerships and communication resulted in positive outcomes?

There were a number of different types of networks being formed by alumni since attending the IM4DC programs. However, in the interviews, most people only described these networks, rather than talking about the outcomes from these interactions. Figure 10a shows the frequency of various types of networks that IM4DC alumni described. Not all alumni reported networking, however some reported up to two network types.

![Figure 10a: Frequency of various types of networks described by alumni](image-url)

- Stay connected online: 10
- Knowledge sharing: 9
- Workshops/Local Platforms: 4
- Talking about collaboration/research: 2
- Limited interaction: 7
**Networking:** Below are examples of the types of network relationships that alumni had formed, and how they had utilised them

- Knowledge sharing and support was often mentioned by alumni. They frequently stated that they kept in touch through emails and phone calls, providing each other with their own experiences and knowledge for support.

  ‘We have just emailed each other and sent out some experiences of teaching in the mining activities. For example a professor sent me more examples in African mining and what kind of equipment is used in mining area and what products they use.’

  ‘Yes of course, I keep contact, you know there were two of us when we were in Australia and once we left that country we’ve always kept in contact. We share knowledge we have back home here and get information from each other.’

  ‘We still discuss about our job and also our goals and how to achieve our goals – like a brainstorming.’

- Discussing research collaboration was mentioned by some alumni. They spoke about collaborating with individuals from their course in regards to conduct specific research projects. One alumnus stated:

  ‘We have talked about a collaborate research here in the Philippines who had one of the researchers on the nickel hyperaccumulators; and there is also another one of the research person during our training in environmental management and mining who was interested to partner with us on the life cycle analysis in mining. So we are really working with people.’

- Organising workshops and local platforms was also mentioned by alumni:

  ‘We have a local platform in the community amongst ourselves. Where we develop some ideas with two other people from the program on social impact and how to pair social impact with the experiences we are having.’

  ‘We cooperated with other participants of the IM4DC network and organised a workshop. Jointly we organised training for workers of Dulaan Khar Mountain Enrichment factory.’
• **Maintaining contact/sustaining friendships** with people who attended the IM4DC programs, via online methods (e.g. social media). These interactions ranged from discussing the course they attended, to catching up with people they have met and developed friendships. Others stated that they have created local online platforms to talk to other alumni:

> ‘All the others I’ve met during my short course, we occasionally communicate via social media and full conversations, talk about what we’re doing and how – how the course has affected us. And then we – we have, sort of, kicked off some sort of friendships so we can always say hello to each other or once in a while.’

• Nevertheless multiple people stated that they had limited interaction, especially out of their country.

> ‘Most of the acquaintances in the course were from Africa, Indonesia and a few guys from Mongolia. We are in the other side of the World.’

Overall, data provided by the participants in this study reflect a relatively limited use of the networks and communities of practice that IM4DC is actively encouraging. This limited use may be due to two main reasons highlighted in the data we analysed. The first one relates to the difficulties in transgressing country boundaries, as alumni seem to be more actively engaged in national networks compared with international ones. The second tendency is reflected in the nature/content of information shared within these networks. Participants often report using the networks for sharing past experience and maintaining interpersonal relationships, and less as resources for improving their work. IM4DC could further facilitate these networks, by forming a platform where individuals could share their experiences and practices, and try work and solve each other’s problems, as at the end of the day they are all working towards a common purpose.

### 4.2 Comparison of Network, partnerships and communication

Comparing to the Evaluation Report 2014, very similar network themes have emerged, as seen in Figure 10b. Overall two major differences can be seen. Firstly, there were more local networks and collaboration/researches formed the previous year’s evaluation, as opposed to the current evaluation. Secondly, in the current year, we observed more online interactions, sharing knowledge, experience and goals with each other. Taken together the results from both years, it is felt that IM4DC should investigate ways in which these networks could further help facilitate changes and overcome barriers in alumni’s countries. The networks that have been formed so far
seem to be heavily based on friendship interaction and communication, rather than more meaningful work-related partnerships.

Figure 10b: Comparison of frequency of various types of networks described by alumni of both years.
5. INTERVIEW FINDING PART III: TO WHAT EXTENT WERE THERE UNEXPECTED OUTCOMES RESULTING FROM IM4DC ACTIVITIES

Original question in the IM4DC Monitoring and Evaluation Framework:

What if any, were the unexpected outcomes of the alumni, from IM4DC activities, including the flow-on effects?

What were some of the unexpected flow-on effects from IM4DC activities?

Not a lot of alumni mentioned unexpected outcomes. This could have been because they found it difficult to clearly distinguish the changes that they implemented after the IM4DC program from those that were unexpected. In total, five alumni spoke about unexpected outcomes that resulted from the IM4DC activities. However, most of these unexpected outcomes did not have too many flow-on effects.

- Change in mind-set was one unexpected outcome mentioned by alumni. Going into the course they did not expect to change the way they thought about their work.

- Other alumni pointed to the support received after the course and the IM4DC formation of friendships and engagement.

  ‘It allowed us to build more friendship and well; really I was not expecting IM4DC would really go far after that engagement, so that was just so enriching and really rewarding so those were.’

- Other spoke about widening of experiences due to being in the program with many people from different countries. As a result they felt they understood a lot more about the differences in regulations between countries and some of others’ barriers.

The results of the unexpected outcomes seemed to slightly vary from those discovered in the previous year. The current evaluation found limited flow-on effects, as all unexpected outcomes seemed to be related to the experiences with IM4DC courses, rather than something they encountered when carrying out a change. Evaluation Report 2014, in contrast, found more unexpected outcomes that were related to action, hands-on outcomes.

Overall, it seems that the reported unexpected outcomes of participation in IM4DC activities are limited in both years. This may be related to the fact that participants might find it difficult to distinguish intended outcomes from the unintended. Having a
clearer definition and taxonomy of the unintended outcomes that IM4DC would like to target would be helpful in more thorough assessment of these aspects in the future.
6. RECOMMENDATIONS TO IM4DC FROM ALUMNI

Several recommendations to improve the value of the activities were provided by the alumni for the IM4DC programs. This summary is based on responses from alumni who offered recommendations. The recommendations are listed, from the most frequently mentioned to the least frequently mentioned.

1. Have more courses available to attend: This was frequently recommended by alumni. As alumni found the courses very useful and informative, a lot of them indicated the need to have more courses on offer. One alumnus stated:

   ‘For my country, it opened a door of knowledge and best practices that can be implemented in our daily work. We expect to have more opportunities of attending more IM4DC events, especially in areas we need to better understand, to better manage and control in mining projects: safe and effective blasting, governance, inspecting, economics, GIS, risk management and Occupation Health and Safety (OHS).’

2. Follow up after the completion of the courses: This was also frequently mentioned as a recommendation. A lot of alumni felt that after the course there was little communication between them and IM4DC, and the return to work plan was not made full use of.

   ‘Well, I will be nothing but honest, you never maintained communication with us after the course. We never got any other invitations after the course, so my key recommendation is that it is great to send us on the training but it would be good to keep in touch. A person or two could take charge of keeping in touch with us. If you could get the trainer or a couple of people to follow up with us after it would be very good.’

   ‘Most of all after attending the program, they [IM4DC] do not care again about going back to “return to work” and make use of it, they forget about it so it will be good for IM4DC to let them contact with all their alumni….We are enjoying their program because it helps us develop our mining sector. It helps also to develop our regulations. IM4DC should have their representative that will be monitoring alumni activities practically or physically.’

3. Include specific courses / information relevant to country: For example, while alumni found the programs beneficial, they believe they could benefit more if specific topics are included to address issues important in their country.
‘There could be other courses in the field, for example specific aspects of geography charts, and there are so many opportunities for other training. The training for geographical charts is great but there are other areas that we would need training in and that would be beneficial for us, for example mineral research. If you could organise these courses and send information to all the participants that would be good. You could break the courses into one or two pieces and integrate the courses. People could go to a series of training sessions in order to cover a broader range of topics.’

4. Offer more academic opportunities (e.g. research, study opportunities): Some alumni spoke about IM4DC considering offering scholarships for public officials who want to pursue masters or doctoral studies, while other alumni spoke about having the opportunity to collaborate on research projects with IM4DC.

5. Conduct training in own country: Many alumni spoke about the benefits of having these courses in their own country, which would allow them to send more people to participate.

‘I hope this can also be done in the Philippines so that more people can participate. I guess right now we only have two or three training conducted here in the Philippines, unlike Africa wherein they have a lot of training conducted in the country, so if we can have that also in the Philippines that would be great.’

6. Make training courses longer. Two alumni mentioned that the training courses were quite short, and there was not enough time for practical activities. One in particular stated:

‘The programme is good and effective except that it was crammed within one month. It should be extended next to make room for more practical and hands on training.’

7. Be more structured and direct: One alumnus spoke about the need for IM4DC to be more structured and clearer in the direction they are heading. Because of the global network they have, they are able to produce tremendous benefits. Therefore, a structure that is more direct and planned out may benefit alumni in a more positive way.

‘I think my main recommendation is that if IM4DC needs to be structured in a way that sort of grows in and gives a direction, but I think is important that the activities of IM4DC should be now
maintained. I think that they are very big in the platform for interacting globally to ensure that especially the developing countries benefits much more from the extracting industry, so I think that needs to be maintained one way or the other’

The recommendations provided this year are similar to those of the previous year. The major significant difference between the two years in terms of recommendations concerns the follow up activity after attending the programs. Interestingly, this point has been mentioned more frequently in this year’s evaluation compared to the previous year. This continues to highlight the importance of sustained contact with alumni after the completion of the programs. The more follow-up and support that IM4DC provides, the more likely that return to work plans and desired changes at the broader scope can be achieved.

Overall, the similar recommendations mentioned indicate that the feedback from alumni can be considered as relatively general observations and should be properly considered.
7. **ANALYSING THE QUALITY OF CHANGE THROUGH SURVEY**

This far, we have presented the evaluation results that were based on alumni self-reported changes and behaviours. To provide a more objective and holistic picture about the impacts of IM4DC programs, we considered it important to also collect feedback from alumni’s colleagues and their supervisors. This would allow us to assess if the changes alumni generated are visible to their team and their organisations. Furthermore, it would allow us to assess the quality of the changes alumni have brought about, rather than simply relying on their own reported behaviours and actions.

A short, anonymous survey was designed and sent to alumni, asking them to forward onto their colleagues and supervisors. The response rate, however, was not high even after several reminders. Across two years, only a total of 23 completed responses were received (5 in 2014 and 17 in 2015). Given the small numbers of responses we decided to report the total responses rather than breaking them down into years. The 23 people who responded were from eight various countries. They had been working with the alumni for an average of 9.2 years.

The survey that first asked colleagues and supervisors of the alumni to describe the significant changes that have been implemented by the alumni. Then, we assessed the quality of these changes using a newly developed concept called Wise Proactivity (Parker et al., 2015). The concept assesses the quality of individuals’ change-related behaviours, looking especially at the extent to which these behaviours can be considered wise. Lastly, we provided colleagues and supervisors the opportunity to give their recommendations for further enhancing the impact of IM4DC programs. We will report the findings from each section as below.

### 7.1 Significant changes since attending IM4DC activities

Many colleagues and supervisors spoke about the different changes that alumni have initiated since coming back from IM4DC activities. Some colleagues and supervisors spoke about developing new initiatives, such as safety programs and research institutes that alumni have put forward in their organisation:

‘She has been working hard to bring a change in safety and health of miners at the mine sites and reduced fatal accidents inside mines.’

‘She has managed to raise awareness on how to prevent accidents and incidents in the Mining operations with the province that she is affiliated to and the country at large, and this has helped in reducing accidents in the sector.’
'He promoted the implementation of safety management system in our office. And for the industry, he proposed to develop new training for small scale miner that will finish in year 2014 for curriculum design.'

'She has been keen in developing a research institute for the mineral sector, which is aimed to undertake research and extension activities on mineral resource management. The institute is to be named XXX [omitted for confidentiality] and through her effort; it is going to be launched this December or January next year. Through the institute, the second-generation of mining researches will be developed and submitted for implementation. These proposals will address the negative externalities of mining in the said aforementioned areas'

Other colleagues and supervisors spoke about the increased skill/confidence and the change of doing work since attending IM4DC activities

'I have heard stories about how he handled all the legal concerns of XXX [omitted for confidentiality] Development Authority all by himself. I have observed that he always tries to think of breakthroughs and better processes in order to maximize the organization's limited resources.'

The most significant change probably her self-confidence in expressing her views on work issues. She also has been more open to other people ideas.'

7.2 Wise Proactivity

Wise proactivity concerns to what extent the change-related behaviours are wise. In particular, wise proactivity assesses whether a wise goal is generated (wise proactive goal generation), and then whether the achievement of that goal is done in a wise way (wise proactive goal striving). We thus assess each of these two aspects. As shown in Figure 11a, it seems that alumni’s changes were rated relatively high on both aspects (4.15 and 4.1 respectively, on a scale of 1 – 5 with 1 indicating strongly disagree and 5 indicating strongly agree), suggesting that their change-related behaviours are perceived as wise and of good quality, by their colleagues and supervisors. We will then elaborate more details about each of the two processes below.
A proactive goal is considered as wise when it meets two criteria: (a) the goal needs to be aimed at serving other people’s needs beyond one’s own (named as “other interest”); and (b) the goal involves a long-term perspective to address issues and opportunities in the long-run, rather than simply solving immediate, short-term needs (named as “long-term focus”). The breakdown of each of these two aspects is in Figure 11b. As can be seen, alumni who were rated seem to achieve relatively equally high scores on both areas, though being slightly higher in terms of taking into others’ interest on board, compared to taking a long-term focus, in developing their goals for change.

The goal striving process is considered wise when it meets three criteria: (a) when achieving the goal, one should remain flexible, resilient and willing to adapt own approach, rather than rigidly sticking to the original plan (flexibility); (b) one should consider others’ needs and take care of others’ feelings (other-focused); and (c) one manages their own emotions and can recover from setbacks and challenges that are encountered during the goal striving process (emotional regulation).

When assessing all the three aspects, we can see that alumni were considered best at managing their own emotions and stay calm, collected and focused in achieving their change plans (4.2 out of 5). Colleagues’ ratings on the alumni’s other-focused behaviours were slightly below the other two aspects, despite still relatively high (4 out of 5).
7.3 Overall benefits of alumni’s participation in IM4DC programs

Supervisors and colleagues were asked the overall benefits of alumni participating in IM4DC programs. Some individuals stated that alumni personal skills had improved: for example, an increase in confidence when carrying out work, and the increase in collaboration with other colleagues. Others spoke about the work changes they had noticed in alumni since returning from the IM4DC programs. Common themes emerged, such as the incorporation of team work, improvement in terms of new ideas in daily work and increased in insight and experience. Few examples are provided below.

‘He has incorporated a lot of team work and learned to reach agreements consensually. He has learned to listen to others especially on their views individually and collectively and is more confident when talking to other people especially during presentations in workshops.’

‘Through the IM4DC program, she was able to introduce new approaches in rehabilitation of mined out areas and in some mining areas on a progressive basis, which are considered by some mining companies in the region. IM4DC is able to give the opportunity for its participants to learn new insights for mineral resource management.’

‘He has increased in confidence and increase in insight and experience [since returning from IM4DC programs].’
‘She has developed a lot of confidence in research proposal writing especially regional planning activities of development of a mining nature.’

‘Participation in IM4DC might have improved his capability to write better research proposals and obtain research funding in connection with soil rehabilitation of post mined area, particularly coal mining.’

7.4 Recommendations to further enhance the impact of IM4DC programs

Colleagues and supervisors were also asked whether they had recommendations to further enhance the impact of IM4DC programs. Most colleagues and supervisors spoke about including the type of training that can change work culture and behaviours, and offering opportunities for more people from their organisation to attend IM4DC programs. Few examples are provided below:

‘I personally would like to see if the programs can be covering on how to change or initiate changes of work culture and behaviour in structured, measured and systematic ways.’

‘There is need to rotate field activity trips amongst participating countries in order to benefit from different unique problems concerning the purview of mining.’

‘The programs should be result oriented and an assessment procedure should be set out to examine the implementation of the proposed recommendation that alumni have.’

‘Increase the number of trainees in Rwanda and extend activities to sub-Saharan Africa.’
8. INTEGRATION WITH IM4DC ALUMNI REPORT 2011-2014

In order to provide an overall picture of the impact IM4DC activities have generated for the alumni, we referred to existing alumni feedback data, which has been regularly collected and reported by IM4DC. The three data source that we draw particular information from in producing the current summary are 1) IM4DC Alumni Report 2011-2012 Activities; 2) IM4DC Alumni Report 2012-2013 Activities; and 3) 6-month follow-up data Jan – Jun 2014. These data sources consolidated feedback from alumni who attended a total of 51 workshops, forums and study tours, both in and outside of Australia from December 2011 to June 2014. These reports include two areas of feedback data collected from IM4DC alumni:

1. An end-of-course survey administered immediately after each activity (in IM4DC Alumni Report 2011-2012 Activities and IM4DC Alumni Report 2012-2013 Activities)
2. A follow-up email survey administered approximately six months after the completion of the relevant IM4DC courses

The two areas being covered in the existing alumni report, and our two years of interviews with alumni, provide program evaluation data at different levels. We map these data sources onto the evaluation levels based on Kirkpatrick and Kirkpatrick’s (2009) model, which suggests that training should be evaluated at four levels, with the first level being participants’ reactions (e.g. perception and feeling about the training), the second level being examining participants’ learning of knowledge/skills, the third level being the transfer of knowledge and skills into changes in behaviours, and the highest level being results (e.g. performance or economic). The mapping is presented in Figure 12 and details of how each evaluation level is addressed are articulated as below.

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**Figure 12:**

- **Results**
  - Alumni interview (ALL@UWA)
  - 6-month Follow-up

- **Behaviours**
  - End-of-course survey (IM4DC)

- **Learning**

- **Reaction**
First, the end-of-course survey administered by IM4DC at the completion of each program primarily addresses participants’ reaction to the training activity, as it is primarily focused on participants’ perceptions and feelings about the training activities. For instance, it asks participants’ perceptions about how well the training activities have been prepared, planned and delivered.

Second, participants’ learning from the training activities are also assessed in the end-of-course survey, as the survey asks participants to report if their knowledge and capacity has been increased and to reflect on their most critical learning in the program. It should be noted, however, such an assessment is heavily based on participants’ self-report rather than objective assessment of learning (e.g. through quizzes, tests, exams).

Third, participants’ translation of knowledge and skills into concrete work behaviours are assessed, mostly through two follow-up activities: 1) the six-month follow-up survey conducted by the IM4DC; and 2) the interview studies which we at the ALL@UWA conducted over the last two years. Both of these evaluations target at the behavioural changes of the alumni and were conducted a certain period of time after the completion of training, thus producing lagged effect to evaluate the training impact.

None of the existing three data sources are able to thoroughly addresses the highest level of training outcome – the results level which concerns actual performance changes and broader social and economic impact, though some preliminary evidence that point to future impacts is hinted by existing data. Given that the ultimate goal of training and developmental activities is to achieve higher-level evaluation outcomes in the Kirkpatrick and Kirkpatrick’s (2009) model, we will give only a brief summary of the evaluation at the reaction and learning level yet will focus more on the training impact at the behavioural level. We will also briefly comment on the impact at the results level whenever preliminary evidence is available.

8.1 Training impact at the Reaction and Learning level

As reported in the two IM4DC alumni report (IM4DC Alumni Report 2011-2012 Activities & IM4DC Alumni Report 2012-2013 Activities), the end-of-course survey administered immediately after each IM4DC activity has indicated positive participant reactions. In 2011-2012 (Dec 2011 – Jun 2012), the first year of the program, more than 85% of participants reported positive reactions, and this was significantly improved for the following year, with more than 95% of participants reporting positive reactions during 2012-2013 (Jul 2012 – Jun 2013). This indicates high level of satisfaction with the IM4DC programs and that the impact at the reaction level is well achieved.
Data are also available to infer the impact at the learning level, from participants’ answers to questions such as "the most important learning" and "favourite sessions" from each activity in these two alumni reports. Participants’ comments tend to indicate that they have effectively taken in the learning and can reflect well on what made sense for them to apply back home. Since their comments provided usually tap specific knowledge areas as covered in different activities, and sufficient details have already been provided in the two alumni reports, we will not repeat them in great details here. Instead, we have extracted a few quotes that are reflective of participants’ learning and reflections.

‘[My favourite session was] in the class room when talk about environmental management in mining because I have something new knowledge to improve the curriculum of my office. It's all about AMD, mine closure and how to manage the soil and overburden, how to evaluate soil loss in mining site area. That's all subject is my favourite and in this course I had a new method how to manage the AMD etc.’

‘[My favourite session was] strategies for change/development, delivered on development of personal goals, because to achieve the objective of attending this training we have to be able to device some serious strategies to effect the changes we want to do. It is setting personal development goals.’

‘[My most significant learning is that] we have common challenges, problems and lacks, in spite of we are from different realities. I can understand better the relative importance of the mining sector in Peru, in the world context.’

‘I was most impressed by the extent at which the Australian government contributes to the development of the Education (mining) and research; how it really recognises the importance of the mining industry in the country's economic development. I have realised that however frustrating the situation of the mining education & research in the Philippines is, I think that we are still lucky that the government through DOST continuously give us research grants & funds for capacity building (no matter how small/big). And I believe that we can still establish similar structure/framework such as in Australia, in the future.’

These results are convergent with what we have found from the alumni interviews where many of the interviewees talked about changes in terms of improved knowledge and skills. Furthermore, even the higher level changes (i.e., team/organizational) that were described in the interviews involve the improvement of knowledge and skills. Therefore, there seems to be sufficient data to support that IM4DC programs are delivering results at the learning level.
8.2 Training impact at the Behavioural level

Application of Knowledge and Skills

In the IM4DC six-month follow-up survey across 2011-2014, alumni were asked about the extent to which they apply the knowledge and skills learned from the IM4DC programs in their jobs. The summary of 2.5 years’ results is presented in Figure 13. It appears that after 6 months of learning, 95.25% alumni report they were applying knowledge and skills from IM4DC and 94.97% reported they had shared the knowledge and skills with others in their organisation, at least to some extent. More importantly, over 1/3 of the alumni felt they were able to apply the learning to a large extent. The great majority of people reporting they were able to use the acquired learning at work and to engage in knowledge sharing suggest that effective translation of learning into work has occurred, not only at individual level but also potentially at broader team and organisational levels. The extent to which Return to Work Plans were implemented was slightly less, with 90.66% reporting they were able to implement their plans to some extent and only 23.74% feeling they were able to implement the plans to a large extent. It is possible that implementing Return to Work plans involves more efforts from the alumni and is more likely to encounter barriers, while knowledge application and knowledge sharing is easier to engage in and can be more welcomed by their colleagues.

![Figure 13: Application of knowledge and skills reported by alumni across 2011-2014](chart)
In the 6-month follow-up survey, alumni also provided answers to the open-ended question asking them about the changes they had implemented at work as a result of the IM4DC activities. We coded these individual answers, using the same framework as reported in Section 2.1 of this report, which assesses whether the reported changes were targeted at the individual, team, or organisational level. We counted the frequency of the changes and reported it in Figure 14 as below. Out of a total of 211 changes reported (some alumni reported more than 1 change), 72 were targeted at individual level, 37 at the team level, and 102 at the organisational level. There were 44 that could not be categorised as the answers offered did not reflect change, or the answers were written in non-English languages.

![Figure 14: Alumni's self-reported changes in the 6-month follow-up survey (2011-2014)](image)

Overall, it seems that most of the changes alumni engaged in were at organisational level, followed by individual level and least at the team level. This suggests that alumni were able to transfer the learning from IM4DC and to contribute to broad level impact beyond themselves and their immediate team. Some caveats, however, should be noted. First, most answers provided were very short, making it difficult to code. Though we attempted to make sense from the limited information, it is likely that some coding may not be entirely accurate if more information was given. Second, as some alumni have attended more than 1 activity and may have responded to more than 1 follow-up survey. It is thus possible that some double-coding might have occurred, yet this could not be identified due to the fact that the survey was administered anonymously. For this reason, the data presented here provides only a rough estimate and should be used for illustration purposes only.

Below we present some well-articulated quotes that alumni provided, to better illustrate the type of changes that have been engaged in. At the individual level,
increased knowledge, skills and improved ways of conducting one’s work has often been mentioned. It was also frequently commented that one’s confidence has increased as a result of the IM4DC training. Some example quotes are:

‘Prior to the course, I went about the topic in a hazy wondering manner. After the course, however, there has been a tremendous improvement: a more systematic and structured approach had been administered; even when had to direct subordinates mentoring had been beneficial.’

‘I have reduced the processing time for EIA permits for Quarries as an outcome of my understanding the environmental issues more clearly and having mitigation options that I can suggest for improvement.’

‘The changes that were very stark as a result of my participation in the course is the confidence that I acquired in dealing with anti-mining groups who were present in the Information Education campaigns that we did in the municipalities within the region. I can now answer confidently the argument of the anti-mining voices who were present. The issues that it is a curse to have mineral abundance, that mining has not contributed to the rise of the economic status of localities hosting mining operations and that mining bring with it chaos and crimes, I can now answer with emphasis as it is now backed with data.’

At the team level, many alumni have shared knowledge to their team members and have assisted their colleagues to perform their work more effectively. This has led to increased knowledge and capability of the team. Some of the team-level changes even led to broader social networks beyond alumni’s individual organisations. This suggests that IM4DC training has indeed produced effect beyond alumni and contributed to team capacity building. Some example quotes are:

‘After finishing master class, I have prepared 1 week training about what I have learned from the class. I shared my knowledge by organizing training to my colleagues and mineral economists who evolve to do Mining project feasibility study in September... As a result of the training some economists used the knowledge for preparing feasibility study and they got good compliment from Mineral resource authority of Mongolia and Mineral expert councils of Mongolia who accepts mining project feasibility study.’

‘[I] take my colleagues through some of the modules gathered from the programme. We have also form a think tank on artisanal mining platform. This think tank is currently working with government on issues relating to artisanal mining in Ghana.’

The organisational level outcomes have been rather impressive in the data resulted from the follow-up survey. Not only many alumni have reported changes, but also some
changes were targeted at rather strategic level, such as providing better education, creating new research centres and institutes, and engaging in policy change, which have real potential to make broad impact. Some examples quotes are:

‘I made a change in the course of my work by educating small scale miners on health and safety issues and avoidance of occupational hazards. Some of them are now safety conscious and some operating groups have appointed safety officers which hitherto were not there.’

‘I have initiated the institution of endowment fund for the support in the training of Geosciences professionals. I am also initiating a yearly workshop/seminar which will provide a platform for Geosciences educators to regularly interact with industry.’

‘Starting a new organisation focused on the Extractive Industries not only in Uganda but the whole of East Africa is an achievement I would not have dreamed of without the knowledge and skills attained from IM4DC- short courses in Australia. These trainings enabled me to identify the existing gaps that need to be addressed.’

‘A proposal to create the XXX [omitted for confidentiality] Research Centre is being prepared. In principle the Office of the Vice Chancellor for Research and Extension has approved creation of the centre in order to collaborate with the proposed national research centre for the same purpose.’

‘The training contributed enough for change in approach on the contents of community development through the contribution of mining industries. More active also became my contribution in formulating new policies, programs and strategies. As example I’m currently working to perform/ conduct the strategic environmental and social assessment - sesa for extractive industry of mining and oil in Mozambique.’

Comparing the results collected from the alumni follow-up survey to the data collected from the two years of interviews, we can observe that the type of changes that were reported in both data collection methods appear to match reasonably well. Similar examples of changes were reported by alumni in each of the three levels of changes (individual, team, and organisational), providing cross-validation for our results. In terms of the frequency of changes being reported, it appears that the alumni follow-up surveys resulted in higher proportion of organisational level changes (shown in Figure 14), as compared to that from the interview studies (shown in Figure 4b). We speculate this may be caused by various reasons. For instance, when alumni were given the time to reflect and write down answers (as it is the case in the surveys), they may be more likely to take their time and identify a most significant change, thus their reported changes may be more likely to focus on broad organisational level changes rather than individual level changes. In the interview settings, they may have felt the need to immediately
provide an answer, and thus may not recall and focus on the most significant change. On the other hand, interviews provide more in-depth information to allow us to identify the nature of the change, while the rather brief answers provided in the survey may not result in the most accurate coding. Given that each data collection method has its strengths and weaknesses, caution should be made to avoid over-interpreting the frequency counts from the two methods; instead, more emphasis should be given to the quality and scope of the actual changes as reported.

Development of Social Network

The alumni follow-up survey also asked the question about the extent to which alumni have maintained contact with other course participants after the completion of the course. The combined results from the two years’ survey are presented in Figure 15. It seems that 79.78% of alumni were able to maintain contact with course participants from their own country, at least occasionally, yet it appears substantially more challenging to maintain contact with course participants from other countries, as just above half of the alumni (54.97%) were able to maintain such contact at least occasionally. While about 1/5 of the alumni (19.39%) maintained contact with those from their own countries very frequently, almost none (1.38%) were able to maintain contact with those from other countries very frequently. This is not of great surprise, as cross-national networks often appear challenging, a result also found in the interviews (Section 3.1 of this report). While alumni from different countries have generally maintained friendships after the courses and managed to stay in touch through online media, such relationships were yet to be further strengthened to build an effective community of practice.

Nevertheless, some positive relationships have been formed for some alumni, mostly from the same country. For instance, some alumni reported in the follow-up survey that some communities of practice have been formed for people with common interests, and these are effective forums to sustain alumni’s social network and develop mining practices collaboratively.

‘We have registered our own Alumni in Zambia and [I] am one of the Directors.’

‘[I was] elected national coordinator of the Zambian M4D Alumni and currently spearheading its official formation and launch.’

‘The major change is to come together to form the Artisanal Mining-Africa Network (AMAN), with the IM4DC Interest Group CARD2012 from Ghana.’
While the follow-up survey did not provide more elaborated information about the nature of networks, the interview studies have confirmed that in addition to the maintenance of friendship, some alumni have been able to engage each other and work collaboratively at a professional level. Some were able to exchange learnings, knowledge and teaching materials; some initiated conversations about research collaborations; and some worked together to develop workshops for their community. These are initial positive signs for building a community of practice. However, for more effective communities of practice to be built, it may be necessary to intentionally foster and promote recognised leaders who could facilitate the activities in the community, and to create opportunities that allow alumni to work collaboratively and interdependently. As have been found by existing research (Kirkman et al., 2001), such factors often determine the likelihood of success of community of practices.

Figure 15: Alumni’s reported networks in the 6-month follow-up survey from 2011-2014

8.3 Training impact at the Result Level

As mentioned earlier, training impact with concrete, visible performance improvement and broader economic, social and cultural change is very difficult to obtain and will take a long period of time to achieve. Given only relatively short time has lapsed since the establishment of IM4DC and since the trainings have been conducted, we could observe changes only at the behavioural level of the alumni, but not yet at the level of performance change and cultural transformation. However, some initial evidence of impact can be observed and it is reasonable to expect more visible societal changes being generated given more time. For instance, some alumni commented:
'Although educational changes, especially those that of policy nature, take time but some of the ideas picked up during the educational tour such as on how to engage the mining industry are being employed. For instance, the School of Mines engaged First Quantum Minerals (FQM), one of the largest copper producers in Zambia, more intensely after return from Australia and this has resulted in FQM buying textbooks and refurbishing a room for book storage and these are to be handed over on 13 December 2013. This is but the first phase and in the second phase FQM is looking at facilitating subscription to electronic books.'

'Because the curriculum has not been in operation, the changes might not be clearly seen. However, this academic program once operational it will make a big impact in the region.'

Therefore, even though it is still early stage, the positive signs are visible. Considering the scope of alumni being already involved at organisational level changes, such as changing work practices; revising policies, regulations, standards; engaging policy makers, communities and industries, we can expect that visible cultural and social transformations can be achieved in the future.

### 8.4 Conclusion

In this section we analysed the data collected from the end-of-course survey and 6-month alumni follow-up survey collected by IM4DC throughout 2011-2014. We noticed large similarities between the data collected in these surveys and the interviews conducted by the Accelerated Learning Laboratory over the last two years. The themes emerged from the findings across different data collection methods provide support to the impact of IM4DC programs. By matching the findings to Kirkpatrick and Kirkpatrick’s (2009) training evaluation model, we found that IM4DC programs were able to deliver impact and lead to changes at the reaction, learning and behaviour levels. This means that participants not only perceived positively of the training, but were also able to learn useful knowledge and skills and translate their learning into good practice at work. It is still relatively early in terms of obtaining larger scope outcomes at social and economic levels, yet we can spot positive signs that indicate the possibility of such impact; however, in order for this to occur, ongoing engagement and support from IM4DC is needed.
9. CONCLUSION

This report presents the analysis of the data collected from semi-structured interviews with 30 alumni who have attended various IM4DC educational programs, as well as the analysis of additional data collected by IM4DC and Accelerated Learning Laboratory from alumni and their colleagues. In the conclusion section as below, the main findings are summarised along with some general recommendations for the IM4DC to consider for future programs and activities.

9.1 Summary of Findings

Finding 1: Positive/innovative changes are being implemented by alumni, although these are not yet ‘transformational’ in terms of magnitude

The results of our interviews from the current year and from 2014 suggest that positive changes have taken place, as all alumni have initiated and engaged in changes after attending IM4DC programs. These changes ranged from individual level, to team and organisational levels. Further analysis of these changes revealed that most of the changes are innovative, and are already within the implementation stages.

While the changes observed from the interviews are positive, it should be noted that these changes cannot be classified as ‘transformational’. This is because transformational changes usually require a considerable amount of time that is far beyond the time span that this current evaluation project has covered, and could hardly be achieved if only one or two individuals are driving changes through. To follow through to transformation change, all individuals within the organisation need to play the change agent role and not just the alumni individually.

Finding 2: Networking among alumni is continued after the program

Alumni tend to maintain a good level of contact with each other after attending the IM4DC program, especially those from the same country. Some alumni share their experiences and knowledge with each other through social media.

Similar to the evaluation carried out in 2014, most of this contact and networking tends to be at personal/friendship level and general information sharing about what each other is doing, with only a small number of them developing more substantial collaborations at professional level. For some alumni, the challenge lies in identifying common ground with others. It is also possible that opportunities to collaborate may not be readily and immediately available, but effective maintenance and continuous development of these networks may lead to future partnerships once opportunities arise.
9.2 Recommendations to IM4DC

Based on our findings, we also have several general recommendations for IM4DC to consider in future programs and activities:

1. **Ensure that training is offered in leadership and change management:** IM4DC should ensure that alumni are offered more training focused around change management. Change management training will allow alumni to be able to have knowledge, skills and competencies to carry out changes within their workplace. To undergo major transformational changes within the organisation, individuals need to be self-aware, need to have interpersonal and leadership skills and need to know how to influence colleagues and stakeholders. Change management training will help equip them with these skills and be more prepared to deal with resistance from other members in their organisation/wider network.

   Putting more emphasis on developing leadership and change management can help bring about long-term results, as alumni would be able to engage in higher/strategic planning, decision making, innovation and creativity to help bring about change.

   From the barriers identified, it can be seen that people need to be equipped with the social skills that would enable them to face the resistance of senior people, to engage others and to teach others further in order to build capabilities. Although technical skills and knowledge remain important, personal skills are equally as important for generating a larger impact and change.

2. **Have regular follow-ups and assessments with alumni:** One of the main recommendations mentioned by alumni was the lack of follow up from IM4DC regarding the implementation of their return-to-work plans. It would be beneficial for IM4DC to regularly keep in contact with alumni after finishing the course, to better understand their progress and help them overcome any barriers and challenges that they might be having. The lack of follow up can potentially lead to return-to-work plans to be halted, as no further progress can be made due to obstacles that alumni may face.

   Further to follow-ups, an assessment process to track participant’s development and change would be idea. To ensure that alumni have developed knowledge skills, behaviour and capabilities by attending IM4DC programs a more direct measurement tool should be implemented. This could help track alumni over time, and see exactly what benefits the IM4DC programs have had. For example, currently IM4DC is not aware of the knowledge, skills, behaviours, capabilities and network that alumni possess at the beginning of IM4DC courses. Correct assessment of alumni before attending IM4DC programs and after returning to their countries would reveal a more accurate understanding of how beneficial
the IM4DC programs have been for alumni in developing countries. For example factors such as financial performance, employee retention, level of morale and engagement, customer satisfaction, team and organisation accident rates, could be tracked over time to see the improvements. These factors however would vary depending on the skills and knowledge that the IM4DC program is aiming to achieve.

3. **Create a platform for networking and sharing of innovative practices**: From the interviews with alumni, there were common resistance and challenges that alumni were facing within their countries (e.g. resistance from people and a lack of funding). However, some people had managed to find ways around this, whether it was to try different communication styles, or try and talk to different individuals that could bring about this change. IM4DC could consider creating such a platform where people could talk about their challenges and alumni would have the chance to share their practices and success stories to help others. These practices and success stories could help other alumni think of creative ways to get around their challenges and barriers. For example seeking funding from other sources such as creating fundraisers, or finding alternative cheaper options to overcome a lack of funding. Most of the networks alumni developed seemed to be more around communicating with them, rather than facilitating their goals. Creating a platform for networking and sharing of practices could help alumni maintain meaningful and supportive connections.

4. **Training key stakeholders at the same time as alumni**: One of the key barriers mentioned was the problem regarding engaging key stakeholders to carry out the necessary change. This was because they either felt that the change was not as important as alumni did, or that they did not quite understand why it was necessary. To help overcome this IM4DC could consider training a class full of individuals from the same country, which includes people from the government, NGO, academic and industry. This would ensure that everyone receives the same education and knowledge regarding key issues within their country, and that the decision makers would have better understand why these changes need to occur.

5. **Alter the way training is conducted**: Some alumni said that the training programs were too rushed and they had no time to apply these practices as there was a lot to learn in a short time frame. It might be useful to break up some of these training sessions into smaller blocks to allow alumni to go back to their countries and implement some of the new knowledge and skills they have. This would give them time to practice and absorb some information, while also allowing them to come back and speak about what worked, what didn’t and how they could change it to better suit their country. Other alternatives include having coaches and mentors along the way following up with alumni and helping them with some of the key learning and implementation stages back at home.
The recommendations to IM4DC are very similar across the two years. This is because the resistance and challenges that alumni face, and the recommendations that alumni provided also overlap between the two years. The only difference in terms of recommendations has been the follow-up. The current evaluation revealed that many alumni, as opposed to 2014, thought that follow ups were necessary and advantageous in helping them carry out their required change.
10. REFERENCES AND FURTHER READING


11. **APPENDIX: INTERVIEW SCHEDULE**

Here we present the interview schedules as designed by the Accelerated Learning Laboratory. It was attempted to address as many questions as possible, but flexibility was allowed during the interviews to allow participants elaborate as much as possible and to take the time probing into questions if necessary.

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**Interview Questions**

1. Our records show that you work as a _______ (job title) at _______ (organisation). Is this still the case? Have there been any changes to your job?

2. What are the main responsibilities in your job?

   *Possible Prompts*
   - How is your job structured? (Who do you report to? Do you work in a team? Etc)

The following questions will be talking about changes that have been implemented in your workplace

3. Since completing the IM4DC courses, what changes have you implemented in your workplace?

   *Possible Prompts*
   - What were the specific changes that you have implemented in your workplace?
     - Prompt at the individual level: e.g. what do you do differently now as a result of your course; what changes have you made in how you work?
     - Prompt at a team level: e.g. what does your team do differently now as a result of your program? How did your leadership change as a result of the IM4DC activities?
     - Then organisational level: For example, what changes if any have been implemented in policy/organisational design/regulation/finance
     - Was this the only change? Can you think of any other changes?
   - Was this idea developed because of attending IM4DC programs?
     - What learning from the IM4DC programs led you to implement these changes?
   - [If the idea was developed after coming to IM4DC but not from the learning of the program], how did you arrive at doing this change?
Now from all those changes that you have described – we would like you to focus on only one change which you think has been most significant as a result of attending IM4DC, and ask you some further questions about them.

4. Why do you believe the change was a good idea?

*Possible prompts*

- How did you arrive at the idea?
- Why did you decide to initiate this action? [Prompt: Why did you choose to put your energy into this idea, and not something else instead?] [prompt: why was it good for yourself/team/organisation/country]
- Why was your idea appropriate to implement at that time/ in that situation/in your cultural and industry context?

5. How did you proceed? What steps did you take?

*Possible Prompts*

- What happened after you thought about the idea? Did you act on it soon after having the idea or did you let it sit until the right moment arose?
- Once you had prepared, how did you go about carrying out your goal/making your idea happen?
- What resources did you need? Did you need to bring others on board? If so, how did you do this?

6. What were the obstacles and how did you deal with these?

*Possible Prompts*

- Who was positive about the change and did they play any role?
- Who was resistant? How did you handle this?
- Were there any things that went wrong or didn’t work as planned?
- What were the major setbacks or things that got derailed?
- What kept you on track to achieve your goal?

7. What was the overall outcome of the change?
Possible Prompts

- Were the outcomes positive or negative? (for you, for others, for organisation, for industry)
- If the change is still taking place, how has it been going so far? What are the initial outcomes you have observed?
- Did the change spin off into other positive changes
- Prompt for specific outcomes, for example what was the outcome for the environment/finance/community/economical/governance etc.

*NOTE: The following Question 8 and 9 are not necessary questions; they should only be addressed if you feel like you have enough time to go through everything. It is more important to address questions 10, 11, 12 and 13 that follow. So when you feel the time is running out, please skip 8 and 9 and move straight to 10.*

8. What are you planning to do next in your workplace?

Possible Prompts

- Is there anything you’d like to change in your workplace right now but have not attempted it?
- What steps have you been planning to take, to get to this in the future?
- What might get in the way? How will you overcome it?
- Is there any role that IM4DC could play to help you achieve this change?
- What skills/knowledge/resources might you need the IM4DC might be able to support you in obtaining?

*NOTE: The following question 8 should only be asked if alumni had not mentioned any changes*

9. Unsuccessful changes

Possible Prompts

- Have you tried to implement something that has not been successful?
- Why do you think it was unsuccessful? What were the main obstacles in place?
- How do you think they could be overcome in the future?
- What skills/knowledge/resources did you need that you didn’t have?

10. Describe the ways you have interacted/collaborated with other people within the IM4DC network?

Prompts
- What kind of interaction have you had with them? *For example, some may have facilitated the achievement of your goal*
- What outcomes have interactions resulted in?
- Is there anything that could have done to further facilitate these networks?
- How do you keep in contact with other people you have collaborated with from the IM4DC network?

11. Outside the alumni did your social network expand at all as a result of your attendance on the IM4DC program?

*Prompts*

- Who else did you collaborate with outside the alumni network?
- How did you go about communicating with them?
- [if there is time] What are some of the positive interactions? How can things be done to improve these interactions?

12. What recommendations can you suggest to the IM4DC programs?

*Prompts*

- What are the big challenges you face in creating sustainable and responsible mining in your country, and what role could IM4DC play in this?
- How do you think IM4DC could be improved to even further facilitate the outcomes up until now?
- What could IM4DC do to strengthen/enhance its impact?

13. Now that we have talked about all the changes, collaboration and recommendation, we would like you to reflect on what you thought were the general outcomes or consequences of your participation in the IM4DC program that occurred?

   a. Which of these outcomes were intended and which were not intended/thought about before attending the course?

   b. Any other unexpected outcomes that resulted after you completed the program and came back to your work?
14. I've gone through all of the questions that we have had prepared for you today, is there anything else that you have experienced or would like to share with us, that will help us with the evaluation of the programs provided by IM4DC?

As mentioned in the email sent out by IM4DC we will require information from your supervisor and colleagues about your change behaviour at work. Jelena Opacic will shortly follow you up with an email, and ask you to pass on a survey for your supervisor/co-worker to fill out.

I would like to thank you for taking the time to speak with us about your experiences; your responses have been very valuable to us.

End of Interview