



# Designing and Implementing an Integrated Project Management System at Minas-Rio (B)

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*I can't say what best practice looks like. But in my twenty-seven years of experience, this was best practice bar none. No one thought they would make it. They did it. Very clearly due to the visibility and accountability in the system Paulo created. I don't think anyone recognizes how great the outcome was. There has been so much organizational change between now and then in terms of people. There are just not that many people left that know and understand.*

Duncan Wanbald, CEO, Base Metals and Member, Group Management Committee, Anglo American

*I remember turning to a secretary bringing in coffee after Paulo was boasting of the singular clarity of focus he had achieved. I asked her, so where are we on the project? She replied instantly that we were at milestone 7 and the next step was the water treatment plant. She knew how many days were left to complete the next milestone on time and was going to work late to help out members of another division. Everyone knew what to prioritize and what was important. There was no gibberish or waste. There was only a singular focus on the next milestone. When something was missing or late, everyone worked together to achieve it. I have never seen anything like it in my life.*

Flavio Valle, Prumo Logistics Director

*The program was characterized by the focus and motivation it instilled in employees who realized that they were part of a very significant work program ... As it became clear that the goal could be reached, waves of optimism and unity swept the organization. It was impossible not to be emotionally involved in the process of meeting the golden milestones.*

Paulo Borges, Safety and Occupational Health Manager

*The program helped change the organizational climate of the company ... Everyone started to get a better understanding of the role of other areas and how their work would impact the milestones. The program generated collective engagement around these 14 goals.*

Wagner Silva, Director of HR & Administration

*I'll never forget when a secretary asked me what 'pre-stripping' means and how she could help.*

Paulo Castellari, previous CEO Iron Ore Brazil

Professors Witold Henisz, The Wharton School, and Bennet Zelner, University of Maryland, prepared this case with research assistance from Joao Braga, Fernando Fernandez, Natalie Peelish and Ivy Wang as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. The development of the case was financially supported by the International Finance Corporation and the Wharton School. Anglo American (Iron Ore Brazil) also provided substantial assistance through phone interviews, the provision of a library of supporting documents and the arrangement of a detailed itinerary of interviews with internal and external stakeholders in Brazil.

Some of the values and numbers presented throughout the case are disguised or should be considered approximate and may not represent actual values or costs. Statements and opinions expressed in this case are those of the authors. They do not express the opinions of the Wharton School, University of Pennsylvania, the International Finance Corporation, Anglo American Iron Ore Brazil or Anglo American plc.

## Crisis Resolved

The negotiations with the mayor of Serro had been difficult. While the mayor later acknowledged that he had asked for four times more than he expected, and that Anglo was willing to do much more in the way of social spending than was reasonable for a company, the mayor was, at the time, caught between pressures of development and local protest. He thus had to appear to be a tough negotiator. At times, he admitted that he acted impolitely, screaming and making threats that he was at the end of his line. Anglo, he acknowledged, always responded with respect and transparency.

Eventually, on June 8, 2013, with the participation of the prosecutor, president of the chamber of commerce, notary, members of the Brazilian chamber of representatives, and company representatives, a new agreement was reached. Shortly thereafter, construction began. The town was responsible for getting people out of the buildings, and Anglo was in charge of payments which were now agreed to total 5 million reais up front for road refurbishment, additional health care infrastructure, and new equipment for and renovations to the mayor's office. Achieving this compromise was not an easy process. Many people were still opposed to the arrangement. They protested at the prosecutor's office and lay down in front of the machines to prevent their progress. However, in the end, the bypass was completed three months ahead of schedule and of the 130 original protestors, only two remained.

*"This is where people lied down in road. It was so tiresome. Took me forever to explain to them that you don't kill the goose that lays the golden egg."*

Epaminondas Pires, Mayor of Serro

The municipality, which had been the 28<sup>th</sup> poorest in the state and suffered under 8 million reais of debt, took advantage of the opportunity that Anglo provided it. The town saw new enterprise development including 300 new jobs that wouldn't be present without Anglo. Over time, the company and the community achieved a much greater understanding of one another, including what each party could and couldn't do. Frequent meetings were held, and the company followed through on its commitments in those meetings. The mayor and other political leaders began to appreciate that Iron Ore Brazil now delivered on its promises. They no longer had to wait for a subsequent decision to be made in Brazil or London. As a result, slowly, trust was built, information was shared, and compromises were achieved.

Paulo was relieved that the crisis was over. The GCII — Institutional Investments Management — database as well as the granular stakeholder data provided to him and the comparative analysis of the cost implications of various concessions were exactly what he had needed in his negotiations. This made him even more determined to understand the drivers of adoption and use of the PMO and ELO.

## Complex Systems

In the aftermath of this success, Paulo continued to reflect on the drivers for the turnaround at Iron Ore Brazil more broadly. The trends he had observed in May 2013 continued. As the number of conditions and programs with issues declined, the percentage of necessary land accessible increased steadily, while the program remained on budget and on schedule (see Exhibits 1-2). Many things had changed to realize this result and allow for the target date for FOOS to stay on track while still remaining under the revised budget.

New managers had replaced some members of Eike Batista's team. New organizational structures and reporting lines had been put into place, as well as novel incentive-based compensation schemes. Perhaps most importantly, in Paulo's mind, the culture had changed. The functional barriers in communication and coordination were yielding. People were coming together to solve problems rather than just to assign or avoid blame. More importantly, all of these novel elements seemed to be congruent; there wasn't one critical piece. Rather, the system was a complex one involving data collection and reporting tasks (described in the (A) case), individuals, formal organizational structures, and informal culture.

## Leadership

Early in 2012, Paulo had assessed his staff and concluded that he had half the people he needed, but the other half of the team was "broken" and needed to be replaced. The "broken" half was used to following Batista's approach to stakeholder engagement rather than Anglo American's. Paulo identified the 40 "broken" employees who still adhered to Batista's approach and slowly began replacing them.

Two senior leaders shared Paulo's perspective – Pedro Borrego, head of HR, S&SD (including licensing) and corporate affairs, who started his career at Anglo American in 1989 and had worked with Paulo for AngloGold Ashanti in South Africa, and Craig Miller, the CFO who has been working at Minas-Rio for two years. Rodrigo Vilela had recently been appointed as operations director. Next, Paulo replaced Stephen Hall with Luis Renato Gonçalves, a project director from Vale who had previously worked with Rodrigo. His project management skills as well as his beliefs in the importance of data and controls, made him the ideal person to lead the organizational transformation that was

to come. Together, the newly established executive committee team worked to build the PMO and ELO systems, as well as to develop a number of other processes to enhance Minas Rio's social license to operate. These systems and processes would provide the robust controls, clear responsibilities, and common reporting structure necessary for success.

## Formal Organization

### Project management office

Beginning in January 2012, every element of planning and reporting for the project was centralized in the new project management office (PMO). A key organizational design component was the independence of the PMO and its direct reporting line to the CEO. To that end, a key initial hire was Aldo Souza from Accenture, who began in business development but assumed responsibility for the PMO in January 2012. Within the project management office, Aldo ensured that he had functional specialists. He created primary contacts for each specialty (e.g., for human relations, social, operations, etc.). They became experts and could have informed discussions with managers in the functions. They weren't just filling in spreadsheets. They were managers of a system of data collection, analysis and strategy-making. Hiring such talented individuals for this office, mostly from the external consultants that created the systems, was a significant expense, but the hope was that this up-front investment would payoff several times over if the team helped achieve the goal of FOOS.

The goal was to focus the attention of leadership on the most urgent elements of the project, mobilize resources to those elements, and establish as well as transparently monitor an execution plan for these elements. The structure offered numerous important benefits, including

independence from operational managers to allow for more pragmatic and holistic decision-making, the facilitation of sourcing of new (temporary) staff, and skills outside of the existing functional departments, including those focused on change management. The formal structure and implementation of the PMO explicitly sought to sidestep numerous critiques of the PMO model. These largely focus on bureaucratic rigidity, resource depletion, and distraction.

Instead, Paulo and Aldo worked to create a flexible structure that would attract and retain the best people and catalyze or energize change rather than act as a drain or distraction.

They followed a model in which objective data were used to identify ambitious high-level goals as well as barriers to their attainment. Notably, these barriers included objective actions, structures, resources, and incentives as well as subjective cultural factors. Interventions to overcome the barriers were then designed and a specific manager with significant autonomy and resources was made responsible for their implementation.

Centralization and control over data were key aspects of the formal organization. Control panels and reports informed senior managers about progress as well as areas of concern. The main deliverable of the PMO team was a bi-weekly PMO booklet for the Iron Ore Brazil executive and management committees. Monthly summaries of this report were also delivered to the Anglo American board of directors and the Minas-Rio steering committee. Detailed calendars of meetings and deliverables guided action, and an open “war room” workspace in which the data were prominently displayed facilitated information exchange both among members of the PMO, and between PMO members and other internal stakeholders.

The centralization of data actually simplified the reporting process. Instead of having to report data to multiple different functions in multiple formats, all data reporting was done centrally to the project management organization, which then diffused the data to the other functions. The direct reporting line to the CEO also made clear who had ultimate responsibility for the data.

The process of establishing the baseline data for the model was critical. Instead of a centralized team defining a parallel set of reporting indicators, the team, and in particular its functional experts, worked with the functional areas to help the functions design the system by which they would to be measured. The only requirement was that their metrics had to feed into an integrated company-wide data structure that allowed for identification of the critical path (i.e., the task whose delay would impact the entire project). The entire process was collaborative in design. Targets and measures were created and edited together.

The PMO manager led the team and had primary responsibility for the development and delivery of the PMO book and the data required to generate it. Reporting to the manager were

- (1) functional specialist or analysts with responsibility for delivering functional dashboards, risk and issue reports, and action plans;
- (2) an integrated planning coordinator whose responsibility was the integration of the functional reports into an integrated report and the assessment of risks in the integrated plan as well as the management of the operations of the PMO; and
- (3) a data management and reporting specialist who transformed the integrated data into executive reports and visuals.

## Corporate Affairs Office

Another substantive change was to link the functions of government relations, community relations, and sustainability under a single corporate affairs head. This became the norm at Iron Brazil starting in 2009 and was formalized company-wide in 2013. It represented a big change from 2007, when government affairs did not reside in the business unit but was a corporate-level function, and community relations was a support team that focused mostly on safety and health issues. Now these functions were seen as strategic, and the initiative to integrate the license to operate (ELO) into the PMO was a key element of the turnaround strategy. Paulo asked Pedro Borrego to assume this important leadership position.

Paulo and Pedro decided that new disciplines would be positioned to turnaround IOB's short-term stakeholder engagement effort while also enhancing pre-existing Anglo American processes in the social area. In doing so, some of the initiatives developed considered a longer time horizon than FOOS. Their goal was to establish an enduring identity for Anglo American in Brazil and consolidate Minas-Rio's social license to operate in the long-term.

Reporting to Pedro and in charge of government relations was Arthur Liacre, who joined IOB in 2012. Prior to Anglo American, Arthur had been with McKinsey with a strong background in public-private partnerships and multilateral project financing, having worked in particular in connection with international financial institutions such as the World Bank.

The creation and formalization of a well-staffed government relations function was a key step in the strategic turnaround of Minas-Rio's stakeholder engagement strategy. It allowed for the repositioning of the investment in Brazil's private sector investment landscape and provided a clear break from the MMX legacy.

Leveraging on Anglo American plc's government relations planning process (See exhibit 3), a customized and strategic government engagement approach (See exhibit 4) was developed around four main pillars:

Adopting a risk-based approach to government relations. A number of government and regulatory issues that could affect IOB's long-term business prospects (e.g. new mining code submitted to the federal Congress in 2013) were treated as critical business and financial risks that had to be assessed and mitigated on a dynamic basis;

Enhancing trust with Minas-Rio's stakeholder "ecosystem." Systematic stakeholder mapping fed into the development of stakeholder engagement plans. Progress in implementation was tracked using objective KPIs. These metrics provided important insight into progress in building, expanding and maintaining relationships with key authorities at federal and state level. These plans involved multiple members of IOB's executive committee as well as Anglo American plc's CEO. In 2013, for example, Paulo had 100 bilateral meetings with Brazilian government officials, including the vice president and key ministers;

Forging long-term partnerships with political stakeholders, while staying away from any electoral entanglements (Anglo American does not support parties or candidates for election). These partnerships were between IOB and state and federal government stakeholders. One of the key initiatives was to support Brazil's Amazon Region Protected Areas program (ARPA for Life), the largest federally supported rain forest conservation program;

Marketing push: an effort to generate visibility of Minas-Rio's investment in the right local, state, federal and international jurisdictions.

Contrary to the often-traditional way of running government affairs, based on pure relationships and connections, Arthur and Pedro, with Paulo's support, made the choice to develop its government relations function as a full-fledged business process inside the organization with a clear mandate, processes and systems, deliverables and reporting. Good enabling practices were also widely implemented within IOB (See exhibit 4)

As described in the (A) case, a parallel office to the PMO named ELO was also established under the Pedro Borrego's leadership. The function, whose responsibility was to manage IOB licensing portfolio, was established as a means to address the need for building process and systems aiming to monitor the activities required for each license and permit to operate Minas-Rio. ELO additionally contributed to providing information to IOB's leadership in an integrated way.

To further enhance Minas Rio's stakeholder turnaround strategy, a new structure responsible for local stakeholder engagement, was developed and led by Aldo Souza, who transitioned from the PMO office. As the number of commitments with public authorities was increasing, IOB identified the need for establishing a dedicated team to deal with the institutional investments portfolio management. With the creation of the area named GCII – Institutional Investments Management – it was possible to identify and analyze all agreements previously made with Minas Rio's municipal counterparts as well as to monitor them with the support of project management tools and operational routines. The portfolio assembled represented around 400 million reais of financial commitments. The main outcome of GCII implementation was to mitigate risks associated with these commitments, to improve the efficiency in attaining these commitments and to allow for some clear

picture regarding tradeoffs when it came to solving specific situations such as the one at Serro (See exhibit 5).

The local stakeholder relationship management group drew insights from standard models of corporate relationship management. IOB and many other organizations had previously eschewed having a single owner for a stakeholder relationship in favor of an approach in which different members of the Anglo American team could be in contact with the same stakeholder depending upon the issue of concern. However, the CRM literature suggested that the benefits of consistency and control over discourse, and of actions related to the relationship and a stronger long-term "Anglo American identity," would offset any costs stemming from reduced agility or speed. A single repository for relationship information was created through a new IT tool that centralized stakeholders' information and engagements historic. The internal benefits were increased control over and access to relationship data and increased consistency in discourse and actions.

As an ongoing effort from the initial project phase when Minas Rio was acquired, Pedro was also responsible for ensuring that Anglo American plc policies and tools to manage stakeholders were implemented at Minas-Rio – such as the Anglo American Social Way (AASW) supported by the Socio-Economic Assessment Toolbox (SEAT). AASW defines the governing framework for social performance at Anglo American managed operations based on a series of requisites, for which the performance is measured on a yearly basis. The main tool to support the AASW implementation is the SEAT, which is an internal toolkit for use at Anglo American's projects and operations, reckoned as best practice in the sector. The tool can be used to gauge the expected impact a mine in a given socioeconomic context, mitigate negative effects,

enhance positive impacts, and engage the communities throughout this process. In the case of Minas-Rio, even in the project phase, these tools were implemented and showed significant improvements, moving from a score of 1.9 in 2009 — reactive status — to 3.3 in 2012 — compliant status (See Exhibit 6).

## Incentives

In an effort to engage employees and maintain that engagement over the 18 months it would take to achieve FOOS, 14 “golden” milestones were identified (See Exhibit 7) and financial incentives were linked to the attainment of each one. Specifically, every employee in the organization would receive a cash bonus of 1,500 reais (approximately US \$580) — perhaps 50% of an operator’s monthly salary — for each of the milestones. In order to receive the bonus, the worker had to be employed for 90 days prior to the milestone’s attainment and remain employed until the end of the calendar year. The total expense of this program was \$30 million. The amounts might seem small but for an operator or an entry-level worker, they were actually rather substantial.

The strong financial incentive engaged employees around a common goal and maintained that engagement over an 18-month period. The energy didn’t fade after three or six months and two or three milestones, as it easily could have. Having a new target every six weeks on average kept the engagement level throughout, instead of focusing on a single target that was so far off.

Dividing the challenge into smaller parts that were achievable in a short time window and then providing positive feedback after each part insured that a salient target was always present and always felt obtainable.

## Informal Organization

### Paulo’s Leadership

Paulo demonstrated the central role of the PMO data by carrying the 150-page bi-weekly PMO report with him at all times (See Exhibit 8). He showed how important it was to him through his actions and his use of the data in multiple contexts. He may not have read every page, but he could access any data point at any time. Behaviors started to change when internal stakeholders observed Paulo using the data in meetings and conversations with managers. By referring to it in executive committee meetings, board meetings, and general management meetings, he gave it visibility and importance. It was the reference and source of data to answer questions and assess performance. Everywhere you saw Paulo, you saw the book under his arm. It wasn’t just a prop, though. He made comments citing data in the book. The press releases he issued cited information in the book. Questions that he asked of his managers in *ad hoc* as well as weekly performance meetings were based on information in the book. Every week he had a list of the 10 most important items, and he followed up on those items relentlessly all week. If one of them was not improving, he would call directly whomever the book said was in charge of that item or drop by their office. He would also be open to solutions on those items from any member of the project team. He made it clear that shortfalls were everyone’s responsibility. He showed through his behavior that he was looking at the data and basing his decisions off of the data. In short, the data was really in charge.

Eventually, managers got the message that their performance was being measured against the data points in the book. Everyone understood



and worked to make sure that data that they thought was relevant or against which their performance should be measured got into that book. They sought to understand the data and to improve it. The realization of the importance of the data trickled down to all staff within the company as well as outside the company. External stakeholders similarly responded favorably, when instead of saying, “I don’t know,” Paulo could pull the book, access the data, and say, “There it is.” The answer wasn’t always what the stakeholder wanted to hear, but at least they got the answer. Eventually, even the internal skeptics, including the CFO, began to turn to and use the data in the book.

## Communications and Signage

A communications campaign was designed and implemented to make things tangible. Employees could see where they were and where they needed to go. Other elements of the communications campaign highlighted what could be done with the bonuses. The communication campaign made progress and rewards more tangible (See Exhibit 9).

The human resources and corporate communications team worked together to translate the new organizational structure, financial incentives and personal leadership of Paulo Castellari in a manner that would be present in the reality of all employees. Three hundred and fifty thousand reais (\$135,000) was spent on an internal communications program entitled “Mission: First Shipment.” The program had three components

**Information:** Translate operational goals in a clear manner such that all employees passing a sign know the next milestone and their responsibility to help achieve it.

**Engagement:** Engage employees to stimulate a feeling of ownership over the attainment of these

milestones and a willingness to work together across functions to achieve them.

**Rewards:** R \$1,500 (US \$580) per employee per milestone regardless of position held.

Messaging was integrated across multiple channels, intended to deliver one message to all employees at one time. This messaging followed a consistent schedule (including a daily newsletter delivered via email to all employees), was written in simple and clear language, and included visuals. Storytelling and, in particular, the stories of employees who used their bonuses to help buy a home, car, or to start a family emphasized that, in addition to helping the corporation achieve its goals, work towards the milestones contributed positively to improving the lives of employees.

Furthermore, as individual milestones were successfully achieved, small celebration events or rituals brought together employees in the site (i.e. mine, beneficiation plant, pipeline, port and corporate office) responsible for attaining each milestone. Paulo Castellari and the entire executive committee of Iron Ore Brazil would appear in person at the site achieving a milestone, even if it was reached at 3 a.m. They would thank all employees, even welders and truck drivers, and personally participate in the celebration. A big bell was rung at each event, together with bells that had been installed in 10 different buildings in six cities, providing a unifying theme to the 14 celebrations and a tangible link among employees across functions, project elements, and locations. The achievements of the business unit and the celebratory event were the focus of communications to all employees of the company. These rituals enhanced morale and maintained momentum for a medium-term goal.

Unifying visuals were installed in all fixed offices and even in temporary workplaces that kept track

of progress on the 14 milestones. These visuals were updated after the attainment of each objective. Hanging mobiles (see Exhibit 10) highlighted the common “Mission: First Shipment” together with the slogan “14 milestones: Making a difference.” Each employee also received a pin with the number of each obtained goal. The goals were designed to be put onto backpacks which were distributed to all employees at the start of the program, but employees were so proud of the achievements that they spontaneously began placing the pins on the lanyards that hold their identification badges (see Exhibit 11) and leaving these lanyards and badges on even when off premises.

## Congruence

While each of these elements was well designed in isolation, the overall systems design also ensured congruence among the elements described here and the tasks described in the (A) case. This congruence between the formal and informal elements of the organization is a critical driver of success in any effort at organizational change particularly one as daunting as First Ore On Ship. Absent congruence between any pair of elements, it would be easy for this initiative to have followed its predecessors in ending with yet another cost overrun and delay.

## Individual – Task Congruence

A common failing in organizational change initiatives is the tendency to overburden individuals with an impossible scope of responsibilities during or after the initiative. It is notable that, in this case, Paulo was able to bring on high-performing managers from within Anglo American, peer firms, consultancies, and the government. A significant increase in resources, including 15 FTEs brought into the PMO office, substantial financial bonuses

payable to every employee of the organization, and other expenditures were made available to ensure that the latest deadline could be realized.

## Individual – Formal Organization Congruence

Another common source of failure in organizational change initiatives is uncertainty over how employees contribute to and link to the new formal organizational structure. Employees often face individual incentives which conflict with newly established objectives for the team or organization. The goal of the PMO and ELO systems was to insure that every individual in the organization had a clear perspective on the complementarity between their actions and those of their peers. Working together, employees could coordinate their efforts to achieve the next milestone. The organized approach of the project management office and its report helped to focus attention on these points. It gave visibility to the most important problems at any moment in time.

The dashboard followed a clear structured hierarchy. Once one learned how to read it, it was possible to digest quickly. Color-coded and nested data made it easy to take in the top-level information and then drill down where relevant or interested. Updated data was available every 15 days. Readers could see from report to report how things were progressing and where there were hold-ups. Readers would then ask themselves, “How can I help?” and “How can my team better support our progress?”

There were two main dynamic points of contact and feedback between the PMO data structure and daily operations. First, beginning in January 2013, the PMO report identified the critical path as well as critical tasks and priority tasks upon which scarce resources should be focused. Thus, if you wanted to attract scarce financial, human,

or other resources to your task, you had to make the case within the system. The short-term senior management meetings, the executive committee review meetings, the budget cycle, and the executive committee review process were all informed by the same data. To attract attention from any of these groups, you had to make the case within the data structure. The initial report highlighted that for the next 18 months, the pipeline construction would be the critical path and that element of the project took on a central role in the perspective of all managers on the team.

Moving forward, the wet area at the beneficiation plant (July 2013-March 2014) and structures at the port (April-October 2014) soon supplanted the pipeline on the critical path. All managers became focused on this element of the project at that time. Because they were able to see the implications of the beneficiation plant on every element of the project, they understood that any setback on that element meant that they would not achieve the project's goal. Before the PMO, these things would never happen or, if they did, they happened only within functional silos. No one could previously see the project level impact or develop mitigation plans.

A second point of contact was through the risk team. If it was concerned about an emerging risk in the medium to long-term, the best thing it could do was to highlight the lack of currently available data to assess the possible incidence or magnitude of the risk. In this manner, new initiatives such as water became more closely monitored and tracked and the data structure was allowed to evolve.

To ensure that the system avoided unnecessary bloat, measures that were less relevant to short-term operations or medium to long-term risks were pruned in a semiannual process. The goal was to maintain only what was absolutely

necessary and to focus on the key risks, opportunities, and business drivers. The goal was not to include everything — which would make the system useless — but to capture everything that a level 3 manager would do or want to know. Also, if a topic was of concern only to one function and had no implications for managers in other functions, it could be dropped from the integrated reporting structure. While this was the theory behind the design, some managers believed that more was added than necessary and that a more simplified data structure might be worth the cost of lost sophistication or comprehensiveness.

The PMO team and the data structure they created brought all of these elements together. It connected people and tasks in different functions and measured them in a common currency: their contribution to the goal of achieving FOOS by November 2014. It became the mediator of disputes. Said Pedro Borrego, who headed the project management office, “Instead of the construction guy being pretty brutal in spelling out what the land access guy was doing wrong and offending the more sensitive people-oriented negotiations team, they could look to the same data and understand how the success of the project depended upon their coordination.”

Over time, through these mechanisms, the PMO and the report it generated evolved from being a special project to being the operating system of the organization. Managers could see the value of the integrated function. It gave them support to reach and defend decisions. It provided a safe environment to both celebrate achievements and share bad news. This was critical for the company to develop reactive or mitigating strategies.

In an ideal world, the integration between operational and financial performance would

have been seamless through the integration of the Prism financial software and the PMO and ELO. While this level of integration was never fully realized, the progress made in offering a unified data structure that allowed for prioritization was a key driver of success.

### Individual – Informal Organization Congruence

The commitment of top managers to success and efforts to create a common mission are rarely lacking in major organizational change efforts. In contrast, the connection between the leadership team and their efforts to shape culture and the mindset of individual employees is often weaker than desired, leading to frustration at the top and confusion among employees. The communications campaign, rituals, and celebratory events were explicitly designed to ensure that every individual felt part of and vested in the progress towards each milestone. The individual bonuses, the slogan of “making a difference,” and the recognition and inclusion of every employee in the communications and celebrations, all worked together to minimize the risk that some employees would feel that their efforts or contributions weren’t being sufficiently recognized or their needs weren’t being met.

### Task – Formal Organizational Congruence

Even where sufficient individuals are hired to achieve the specified tasks and they are appropriately motivated by formal and informal incentives and targets, new coordinating structures may fall short of what is required for those individuals to succeed. An important organizational innovation to facilitate the coordination of necessary tasks, as suggested by the PMO report, was the creation of a regular forum for the various function leaders to discuss progress on High Impact elements of the Turnaround Strategy (HITS). These meetings

followed a highly structured process in which cross-functional coordination issues were raised, prioritized, and recorded in formal minutes. Issues were then tracked, and further follow-up reporting was done on the progress in addressing and resolving them. An issue that was raised at a meeting was automatically included on the next meeting’s agenda. The legal team in particular felt empowered by its presence and voice in these meetings. Previously perceived as a support function to which other managers would send directive emails without any appreciation for the process involved in meeting the (often) last-minute goals thrust upon them, it now literally had a seat at the table. They could explain the process and raise awareness regarding the hurdles that stood in the way of delivery of the requests.

Beyond the HITS meetings, there were lower-level consultations every Monday morning, which could be escalated if needed until they reached the HITS committee.

### Task – Informal Organization Congruence

Another common failing in organizational change initiatives can be a failure of informal organizational elements to reinforce the importance of completion of the necessary tasks. Paulo’s personal leadership, together with the visual prompts that surrounded every worker and the communications that bombarded them all, reinforced every operator and every manager’s attention to achieving FOOS. There was no doubt of the goal or the tools to achieve it. The PMO and ELO were every employees guide for action, and every employee had a responsibility to ensure that these reports and the underlying data systems were accurate. It was a communal mission shared for which everyone was willing to make sacrifices to achieve their common goal.

## Formal Organization-Informal Organization Congruence

Similarly, Paulo's leadership and the communications initiatives complemented the formal empowerment of the PMO and corporate affairs offices as well as the financial incentives provided by the HR team. The organizational empowerment of the PMO and the corresponding ELO of the Pedro Borrego's leadership resulted in the integrated PMO report. These reports, as demonstrated by Paulo's leadership, were a critical management tool. They identified specific managers who were responsible for individual elements of a 20,000-part process, motivated employees to meet set goals, and created a collective sense of unity between everyone across the entire scope of the project.

## First Ore on Ship (FOOS)

Of the 14 intermediate milestones identified, 12 were achieved on or ahead of schedule. On October 25, 2014, the ultimate target was met 35 days ahead of schedule and \$400 million under budget. The celebration for this 14<sup>th</sup> milestone was the most dramatic of all. Luis Renato, head of implementation, personally supervised the first shipment and rang the ceremonial bell signifying the completion of the final golden milestone. A WhatsApp group provided updated news regarding the 30-hour loading procedure of the first ship so that employees who were not at the port had the opportunity to see their work become reality with the fulfillment of the ultimate goal. Advertising, including images and quotes from individual employees, was distributed using multiple media in all 33 municipalities affected by the project and sent directly to opinion leaders in Belo Horizonte, Rio de Janeiro, and Brasilia. These advertisements were seen or heard on all major television stations, 24 radio stations, 24 newspapers, 11 magazines, 21 billboards,

12 websites, three airports, four social media websites, and 312 commercial buildings. The theme for the end-of-the-year feast was FOOS, and the event was celebrated at all sites for every shift of workers. In Belo Horizonte, popular musicians Chitaozinho and Xororo notably participated in the festivities.

*If we had had this system in place in 2008, we would have gotten to FOOS two years sooner.*

Jonathan Samuel, Group Head of Social Performance and Engagement, Anglo American

*It wasn't just about the money. At the end of the day, everyone was engaged. I think it was a combination of everything: HR, incentives, reports, meetings, HITS, communications all did a great job. The whole organization and the communications worked together to create an intangible integrated culture led by senior managers including Paulo. They all together communicated the 14 goals, the posters that were everywhere, the pins, the small celebrations, the bells that everyone in the company would go to ring to say "Yay! Guys, we met the target!"*

*At the end of the public hearing ceremony for the issuing of our operating license, I was jumping up and down at 2:30 a.m. in my house with my husband and kids asleep while texting to my manager who was there. When I saw FOOS and I saw the video, I cried. Everyone in blue shirts like a soccer team. Seriously, I cried. I was extremely proud. We delivered the biggest pipeline in the world. Thirty-three municipalities, thousands of stakeholders. I was very proud of our team.*

Raquel Araujo, Government Relations Specialist

# Exhibit 1: Update of PMO S-Curve to FOOS

A.02 DB Level of Change  
 Issue Date: 31-Oct-14  
 Data Date: 15-Sep-14

**MOST LIKELY SCENARIO**

Legend:

- No BD delay / Less than 5 pp below
- Delayed w/o FOOS Impact / 5-10 pp below
- Delayed with FOOS Impact / >10 pp below

Status: Actual (Green), Planned (Yellow)

Resp. P. Castellari

## Minas-Rio Overall Status

Implementation	wt. 0.857	94.9%	94.9%	Owner : L. Renato
Status	% Actual	% Planned	Baseline	Forecast
Beneficiation Plant	95.7%	95.5%	26-May-14	15-Dec-15
Pipeline	99.9%	97.0%	30-May-14	27-Oct-14
Filtration	97.3%	97.7%	11-Jun-13	31-Oct-14
Port	88.3%	91.1%	13-Aug-15	31-Aug-15
Operations	wt. 0.100	97.7%	98.3%	Owner : R. Vilela
Status	% Actual	% Planned	Baseline	Forecast
Mine	98.7%	99.7%	30-Dec-14	30-Dec-14
Infrastructure	95.0%	100.0%	31-Mar-14	30-Dec-15
Operational Readiness	96.8%	97.1%	30-Dec-14	30-Dec-14
ELO	wt. 0.043	100.0%	100.0%	Owner : P. Borrego
Status	% Actual	% Planned	Baseline	Forecast
Overall Status	100.0%	100.0%	01-Jul-14	30-Sep-14

Physical Progress - Overall		Δ%	-0.1%	ΔP.P.	-0.1
<b>Most Likely Scenario</b>					

Indicator	Beneficiation Plant		Pipeline		Filtration + Port		Operations		Others		Total	
	YTD	2014 Target	YTD	2014 Target	YTD	2014 Target	YTD	2014 Target	YTD	2014 Target	YTD	2014 Target
HPI	1	0	0	0	3	0	0	0	0	0	4	15
FIFR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LTIFR	0.14	0.0	0.02	0.0	0.07	0.0	0.10	0.0	0.0	0.0	0.07	0.05
TRCFR	0.36	0.26	0.15	0.26	0.13	0.26	0.20	0.26	0.46	0.26	0.23	0.26
VFL*	173%	5,000	266%	5,000	152%	5,000	74%	5,000	-	-	167%	20,000

Cost (Sep/2014)							
USD Million	LTD - Sep 2014			Budget YTD 2014	Budget FY 2014	Budget FY 2015	Total Project Cost
	Up to 2013	YTD - Sep	Total				
Implementation	4,822	990	5,813	1,163	1,150	46	6,339
Pre-Operational	224	228	453	273	316	74	615
Land Management	262	50	312	94	102	30	394
Others	480	183	663	383	668	408	1,237
<b>Subtotal</b>	<b>5,789</b>	<b>1,451</b>	<b>7,240</b>	<b>1,912</b>	<b>2,236</b>	<b>559</b>	<b>8,584</b>
Hedge	-166	108	-58	27	12	-173	-327
<b>TOTAL excl Risk &amp; Mgmt Reserve</b>	<b>5,623</b>	<b>1,559</b>	<b>7,182</b>	<b>1,939</b>	<b>2,248</b>	<b>386</b>	<b>8,257</b>
Risk & Mgmt Reserve	0	0	0	0	109	434	543
<b>TOTAL</b>	<b>5,623</b>	<b>1,559</b>	<b>7,182</b>	<b>1,939</b>	<b>2,357</b>	<b>820</b>	<b>8,800</b>

\* Total VFLs considers inputs from Implementation, Operations, S&SD and HR areas

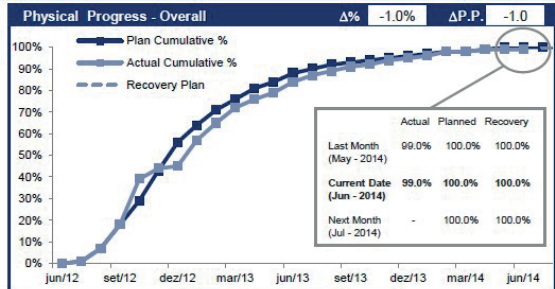
## Exhibit 2: Update of ELO Performance Indicators to FOOS

E.12 DB Level of Change  
 Issue Date: 25-Jul-14  
 Data Date: 15-Jun-14

Legend: HIGH PRODUCTIVITY SCENARIO

- ✓ Concluded
  - On Track / Less than 5 pp
  - Delayed w/o BD Impact / 5-10 pp below
  - Delayed with BD Impact / >10 pp below
- Status   Actual  
 Resp. J. Centeno   Planned

### ELO Project



**Overall Progress Comments:**  
 Overall progress is slightly below plan. Still pending the signature of the agreement to replace consents and conditionings at "Serra do Brigadeiro State Park" (Pipeline). Port LO was granted in May/14. Site inspectors have been held in Pipeline and at Mine and Beneficiation site.

Mine and Beneficiation <sup>(1)</sup>		wt. 0.333	99.0%	100.0%	Owner: J. Centeno	
Status	Selected Packages	% Actual	% Planned	Baseline	Forecast	
✓	Licensing	100.0%	100.0%	30-Dec-13	15-Jun-14	
✓	Land Access	100.0%	100.0%	22-Jan-14	13-Jan-14	
⚠	Land Management	97.0%	100.0%	18-Dec-13	30-Jul-14	
✓	Biotic	100.0%	100.0%	28-May-14	30-May-14	
✓	Physical	100.0%	100.0%	30-May-14	30-May-14	
⚠	Social	98.0%	100.0%	12-Feb-14	30-Aug-14	

Comments: Social and Land Management are behind schedule due to Resettlement Houses Construction, but progressed as request for the LO submission. The SUPRAM's site inspection occurred from 30 June until 03 July.

TL 230kV <sup>(1)</sup>		wt. 0.036	100.0%	100.0%	Owner: J. Centeno	
Status	Selected Packages	% Actual	% Planned	Baseline	Forecast	
✓	Licensing	100.0%	100.0%	20-Feb-14	06-Dec-13	
✓	Land Access	100.0%	100.0%	15-Aug-13	15-Aug-13	
✓	Land Management	100.0%	100.0%	07-Aug-13	01-Aug-13	
✓	Biotic	100.0%	100.0%	03-Feb-14	03-Feb-14	
✓	Physical	100.0%	100.0%	10-Jan-14	10-Dec-13	
✓	Social	100.0%	100.0%	03-Feb-14	03-Feb-14	
✓	Legal Obligations	100.0%	100.0%	25-Nov-13	13-Jan-14	

Comments: The Supram's site inspection to award the LO in the TL230kV occurred on February, 27th and 28th. However the already given APO permits the LT230kV to fully operate. The LT LO obtaining is expected by end of July/14

<sup>(1)</sup> The dates and percentages reported in each area are the planned in the Recovery Plan.

Operation License Granting		Owner: J. Centeno			
Status	Selected Packages	Filed		Obtained	
		Baseline	Forecast	Baseline	Forecast
✓	LO for Mine - Beneficiation	30-Dec-13	18-Dec-13	30-May-14	30-Aug-14
✓	APO for TL 230kV	30-Oct-13	29-Nov-13	20-Feb-14	06-Dec-13
✓	LO for Pipeline	01-Feb-14	30-Jan-14	01-Jul-14	30-Aug-14
✓	LO for Port	28-Feb-14	13-Nov-13	30-Aug-14	29-May-14

Comments: Implementation, Engineering and Environmental teams started the works of housekeeping in all sites that are needed for LO. Currently all sites are up to date with needed progress for the environmental agencies inspectors. Port LO was granted in May 2014.

Pipeline <sup>(1)</sup>		wt. 0.484	99.0%	100.0%	Owner: J. Centeno	
Status	Selected Packages	% Actual	% Planned	Baseline	Forecast	
⚠	Licensing	100.0%	100.0%	17-Mar-14	30-Jun-14	
✓	Land Access	100.0%	100.0%	21-Nov-13	21-Nov-13	
✓	Biotic	99.0%	100.0%	15-May-14	30-Jul-14	
✓	Physical	100.0%	100.0%	31-Mar-14	15-Feb-14	

Comments: The 1<sup>st</sup> site inspection was held on the week of 12 May for tracks II and III. The second one was held from 10 June until 20<sup>th</sup> for track I and II (remaining). Biotic have the forecast date postponed to July/14 due to the signature of an agreement with Environmental Agency to replace the consents and conditionings ("Serra do Brigadeiro State Park").

Port <sup>(1)</sup>		wt. 0.147	94.0%	100.0%	Owner: J. Centeno	
Status	Selected Packages	% Actual	% Planned	Baseline	Forecast	
✓	Licensing	100.0%	100.0%	28-Feb-14	15-Feb-14	
✓	Land Management	100.0%	100.0%	01-Aug-12	01-Aug-12	
✓	Biotic	91.0%	97.0%	01-May-14	30-Jul-14	
✓	Physical	98.0%	98.0%	15-Jul-14	15-Jul-14	
✓	Social	100.0%	100.0%	16-May-14	15-May-14	
✓	TL 138kV - Land Access	100.0%	100.0%	04-Apr-13	04-Apr-13	
⚠	TL 138kV - Biotic	92.0%	99.0%	17-Jul-14	17-Jul-14	
✓	TL 138kV - Physical	100.0%	100.0%	11-Feb-14	11-Mar-14	
⚠	Stone Quarry - Biotic	87.0%	100.0%	24-Jan-14	30-Jul-14	
⚠	Stone Quarry - Physical	100.0%	100.0%	20-May-14	15-Apr-14	
⚠	Stone Quarry - Legal Obligations	60.0%	100.0%	02-Jul-13	30-Jul-14	

Comments: Delays in Biotic and Legal Obligations at Stone Quarry are due to new negotiations with Environmental Agency (INEA). The new Environmental Compensation Term (TCA) still needs to be signed by INEA.

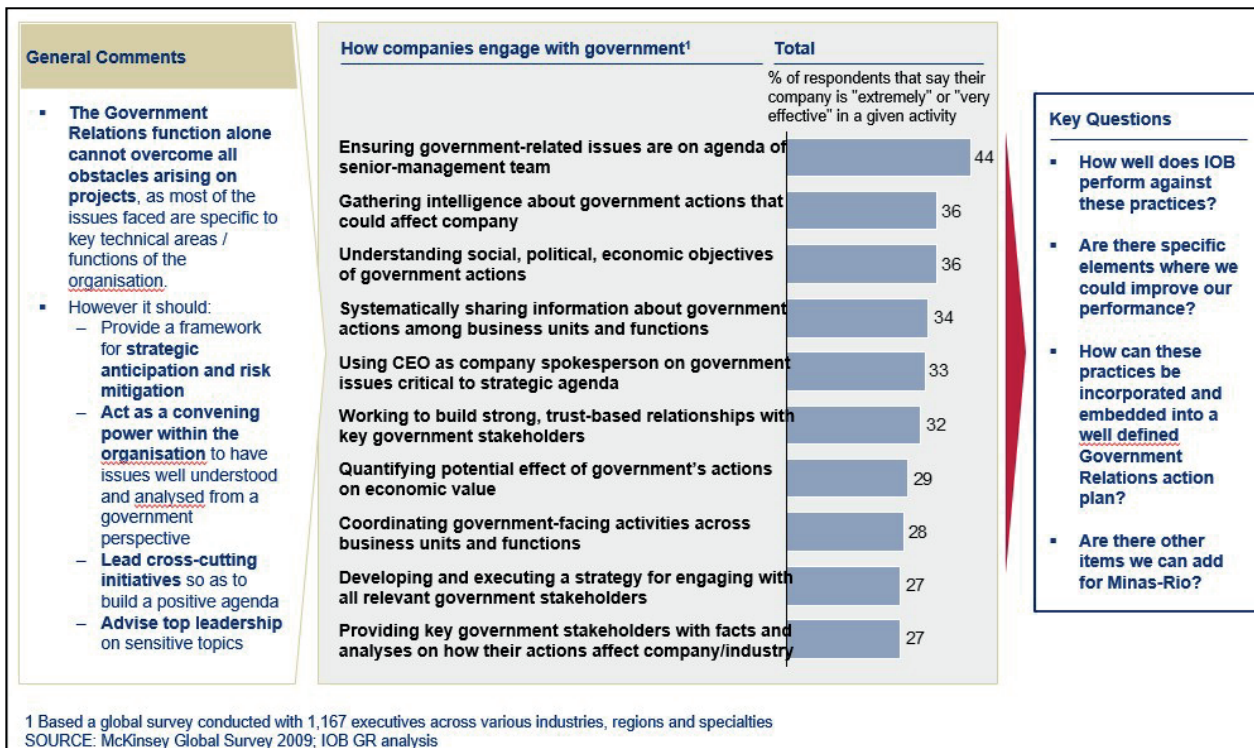
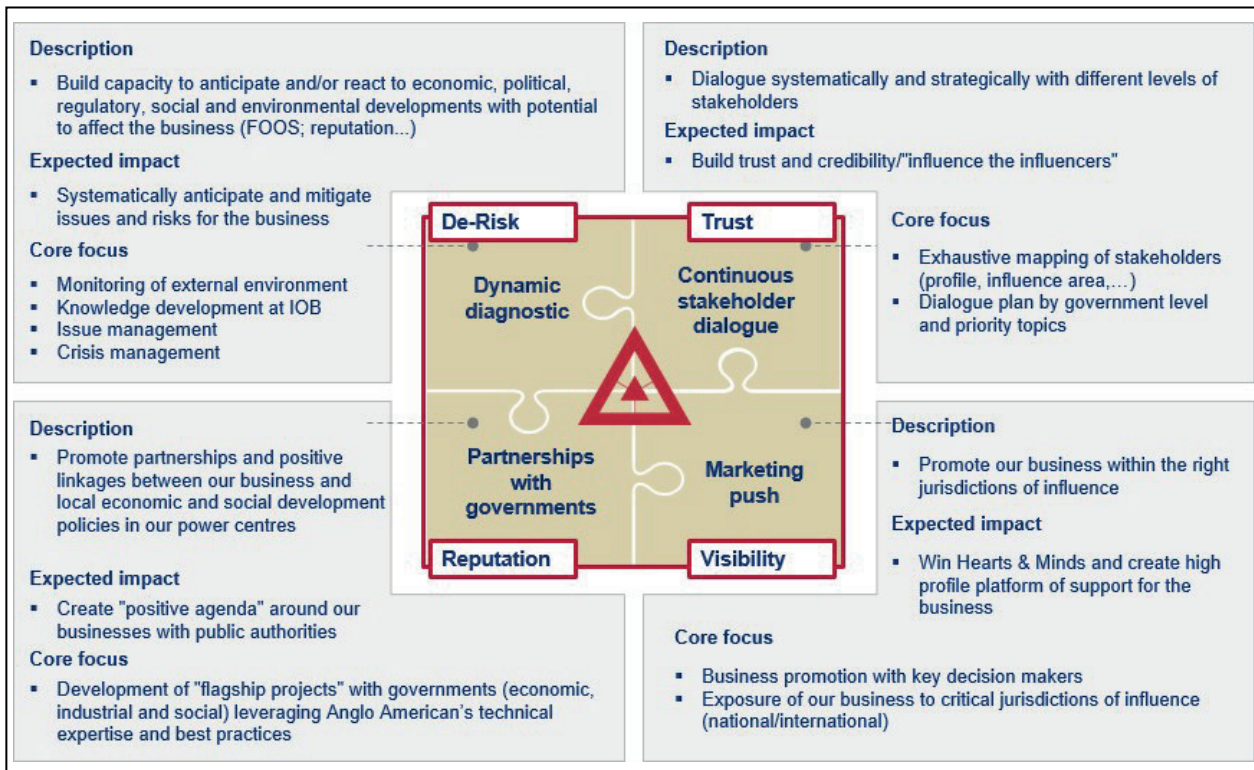
### Exhibit 3: Government Relations Process Steps

TOOL	STEP	GR MANAGER	ADDITIONAL IN-COUNTRY	EXTERNAL/CONSULTANTS	TEAM/PANEL ACTIVITY	GROUP HEAD GR	COMMENT
Tool A – Situation Analysis	Compile Factbase	Y	Y	Y	-	-	Requires assembly of broad range of information - most useful after filtration.
	Carry out PIES analysis	Y	-	Y	-	-	Good learning exercise, but presentation of conclusions to team gets 80% result. Team activity not essential.
	SWOT analysis	Y	-	N	Y	Y	<b>Important to include in Team/Panel activity if possible.</b>
	Produce reports	Y	-	-	-	-	Offline process, mostly transcription/formatting.
Tool B – Key Issues	Seek business inputs	Y	Y	N	?	Y	Team/Panel activity recommended for best result if team time is available – judgement call for GR Manager. This activity has characteristics of significant volume, and value of diverse inputs.
	Identify potential Key Issues	Y	?	N	?	-	
	Rank Key Issues	Y	?	N	?	-	
	Produce reports	Y	-	-	-	-	Offline process, mostly transcription/formatting.
Tools C – Key Influencers	List persons/ organisations	Y	Y	Y	-	-	Offline process, needs thorough approach.
	Rank the Influencers	Y	?	?	?	-	Degree of sensitivity Value in using Team/Panel approach.
	Produce table	Y	-	-	-	-	Offline process, mostly transcription/formatting.
Tool D – Measurement & Reporting	<b>Determine Target State</b>	Y	Y	N	?	Y	<b>Requires high level of judgement, good insight into the business. Significant senior management input required.</b>
	<b>Identify long-term key objectives</b>	Y	?	N	Y	?	<b>Team process required. Less direct senior management involvement required if Target State sufficiently clearly expressed.</b>
	<b>Milestones and KPIs for the year</b>	Y	Y	N	Y	?	<b>Team process required.</b>
	<b>Link to Key Issues</b>	Y	Y	N	Y	?	<b>part of same process.</b>
Remainder of GR Plan Process	Action Plans, Special Projects	Y	Y	Y	?	?	Specifically accountable people. Teams as applicable to individual projects/plans.
	Compile Government Relations Plan	Y	-	-	-	-	Offline process, mostly transcription/formatting – some important editing, presentational issues.
	Plan approval process	Y	Y	N	N	Y	

Key: Y = essential involvement; N = should not be involved; ? = involvement is discretionary; - = no need for involvement  
**Bold** = team process essential; **Normal** = team process useful if time is available; **Bold** = Senior Management involvement essential



## Exhibit 4: Customized Government Engagement Approach



## Exhibit 5: GCII – Overview of Commitments and Budget

E.11a DB Level of Change

Issue Date: 31-Oct-14  
Data Date: 27-Oct-14

### Institutional Investments GCII – Overview of Commitments and Budget

Legend:

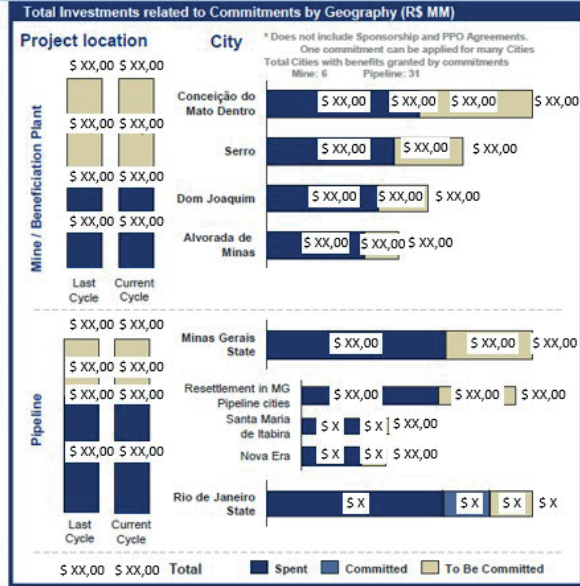
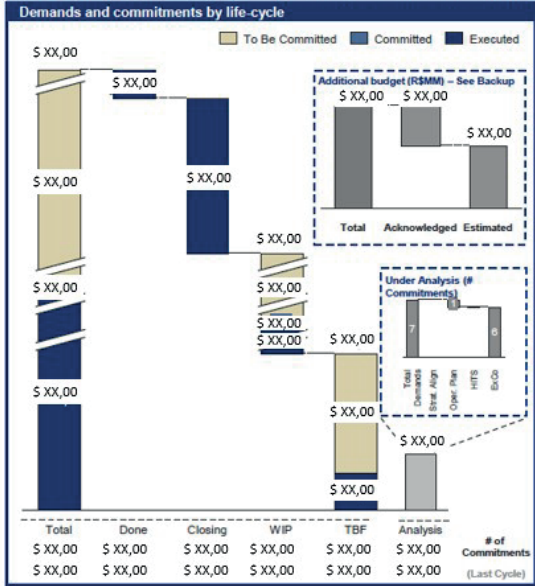
- On Track
- Risk / Attention Point
- Delay/ Issue

Status ■

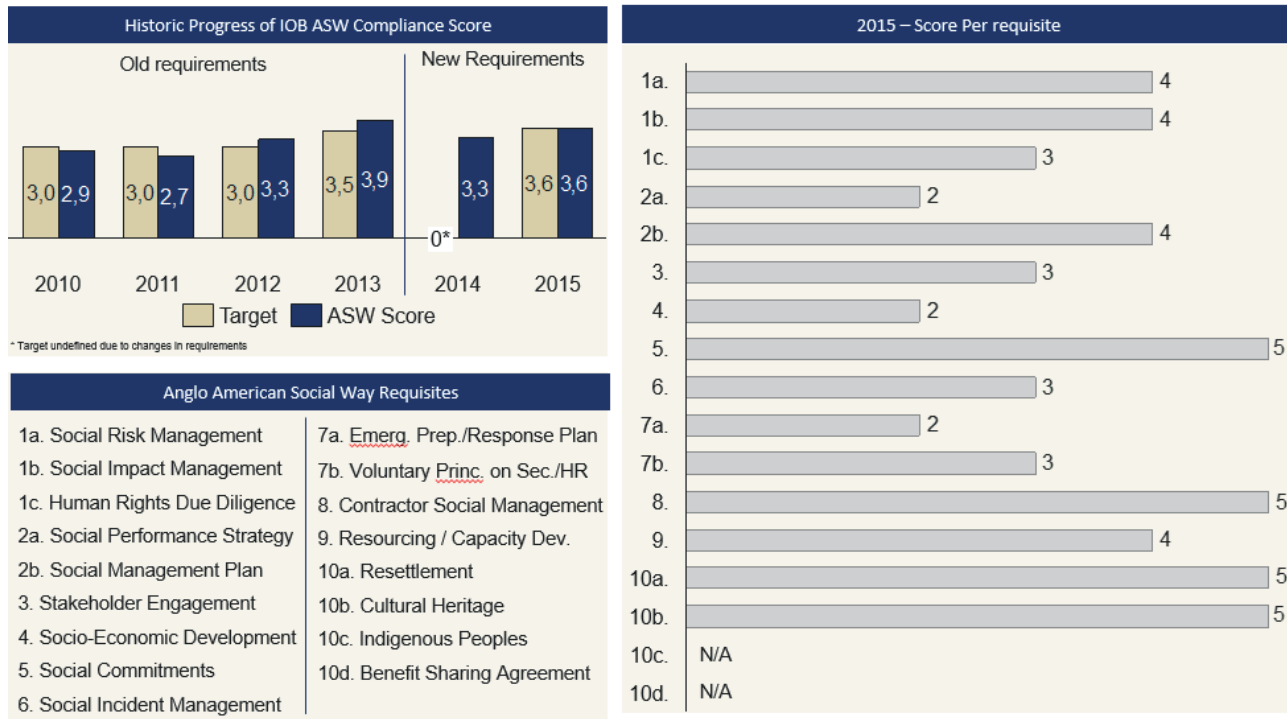
Resp. ■ Xxx

**Overall status**

- (i) Total budget increased \$ XX,00 since last report: \$ XX,00 (Restoration of Nossa Senhora da Conceição Church) was approved from contingency and added in the total budget, and the additional \$ XX,00 is due to adjustments in 07 commitments.
- (ii) Total additional budget reduced \$ XX,00 (Restoration of Nossa Senhora da Conceição Church) since last report due to additional budget approved.
- (iii) 12 commitments were classified in Closing Process: 02 commitments of urban infrastructure in pipeline cities, and 10 commitments about environmental education. Totalising the budget in \$ XX,00
- (iv) One commitment (Cultural Development - Serro) was formalised and is now in WIP.
- (v) \$ XX,00 classified as acknowledged (Hospital - CMD and Vehicles Acquisition and City Streets repair - Serro), were already approved, but not yet added in the total budget due to final document formalization. Documentation in progress.
- (vi) 2 new commitments (Flores Street – Serro, ‘Terças Ambientais’ event) were approved by ExCo and classified as TBF (To Be Formalised).



## Exhibit 6: Historic Progress of IOB ASW Compliance Score



## Exhibit 7: 14 Milestones

	<b>Plan</b>	<b>Achieved</b>	<b>Milestone</b>
1	15-Apr-13	15-Apr-13	Beginning of Electromechanical Assembly of Tailings Thickener
2	2-May-13	02-May-13	Closure of the Tailings Dam
3	30-Jun-13	31-Jul-15	Placement of first cassion at the Port of Acu
4	20-Aug-13	20-Aug-13	Completion of the Assembly of the 138kV Transmission Line
5	1-Sep-13	26-Aug-13	Assembly and Operation of the First Truck
6	1-Dec-13	06-Nov-13	Pre-Stripping of 2 million cubic meters
7	30-Dec-13	02-Dec-13	Complete earthworks at the Pipeline
8	30-Dec-13	23-Dec-13	Completion of the Electromechanicam Assembly of First Mill Balls
9	28-Feb-14	10-Feb-14	Energization of 230kV Transmission Line
10	31-Mar-14	03-Feb-14	File for Operating License
11	21-Jun-14	29-May-14	First Ore into Primary Crushing
12	3-Jul-14	11-Jul-15	First Ore into Primary Grinding
13	20-Aug-14	20-Aug-14	Start of Ore Pumping into Pipeline
14	30-Nov-14	25-Oct-15	First Ore on Ship (FOOS)

**Exhibit 8: Paulo holding the PMO Book**



## Exhibit 9: Making Financial Incentives Personal



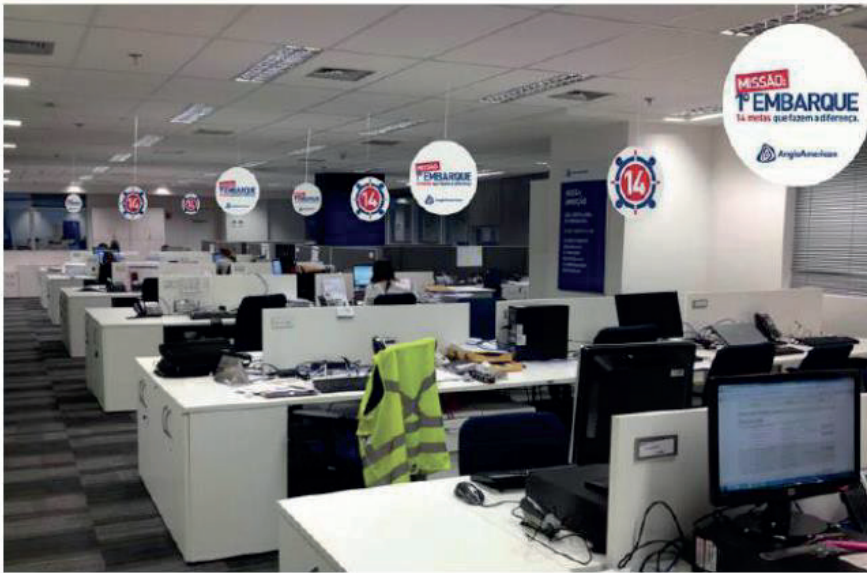
**14** **MISSÃO:**  
**1º EMBARQUE**

**FALTA POUCO PARA O NOSSO  
PRIMEIRO EMBARQUE.**  
CLIQUE AQUI E INSPIRE-SE.

 **AngloAmerican**

Mineração e pessoas que fazem a diferença.

## Exhibit 10: Signage

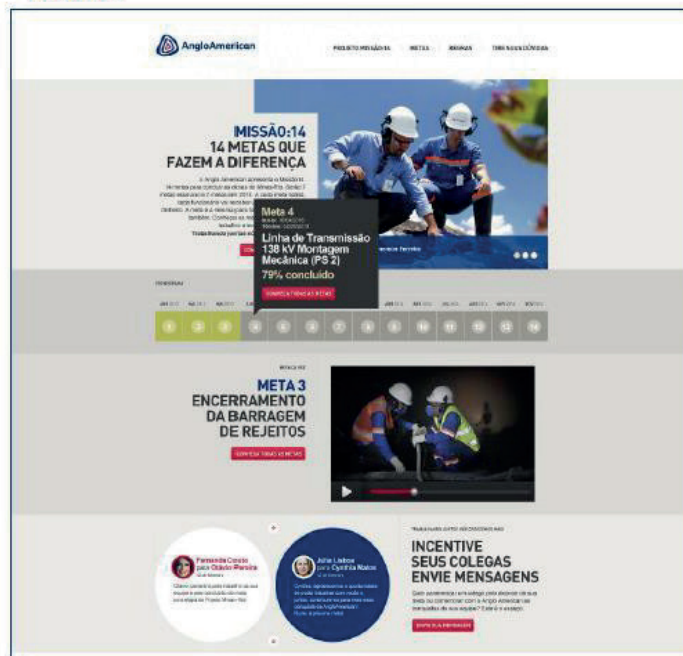


## CAMPANHA DE COMUNICAÇÃO: CARTAZ E HOTSITE

Cartaz:



Hotsite:



### Exhibit 11: Display of Pins





## Exhibit 12: FOOS



# **ABOUT THE:** *ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) INITIATIVE*



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