

Changing the Culture: A Safety Success Story in Senegal

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SUMMARY

The Ausenco Client decided to build a railway and port facility in Senegal to export iron ore products. The EPCM contract for the project was tendered in late 2011 and awarded to Ausenco in February 2012 for construction to be completed by October 2013. Even with the very tight timelines, the overarching priority for the entire engineering and construction team was Safety. I am very pleased to report that the project has been completed on time and on budget with zero lost time injuries.

This paper is a guideline of how you can deliver with Zero Harm. If a project can be successful in a country like Senegal that has no background culture of safety, then this program can be implemented with success anywhere. There are no excuses – only learning can come from failure.

INTRODUCTION

I am a registered and licensed professional engineer in British Columbia and Ontario, a member of AARS (American Association of Railroad Superintendents) and I manage Ausenco's Heavy Haul Rail & Road Systems groups in Vancouver, BC (for the America's) and in Perth, Australia (for APAC/Africa region).

I attended the University of Waterloo where the main focus of for my civil engineering degree was road and traffic engineering. I then went to work for 20 years at Canadian Pacific Railway in Ontario, Alberta, and finally in British Columbia. Then I worked 15 years in railway safety oversight with Transport Canada, the Canadian Government railway safety regulator; and for the past six years I have worked as a consultant. Safety has been at the forefront all of my working life. How do you keep everyone safe?

In 1998, I joined a team in Ottawa to initiate changes to the Railway Safety Act (RSA 1999) and design the regulations requiring Canada's Railways to implement Safety Management Systems. In 2001, the Director General of Railway Safety rewarded me for leadership in assisting the Transport Minister's issuance of an Emergency Directive for the improved handling of switches in non-signalled territory. But this emergency directive was only issued after the accident which occurred two years after the implementation of Safety Management Systems. How do you prevent the accident? If safety management systems are not sufficient, then how can we keep everyone safe?

Since joining Ausenco Engineering, I have been exposed to world-wide construction and safety philosophies which have further piqued my interest in how to develop a Strong Safety Culture. How is it that workers in Africa, coming from a background of NO SAFETY CULTURE, can deliver construction projects with NO LOST TIME INJURIES?

On our Client's project in Senegal a strong safety culture was successful on the Rail and Port Construction Project which in has now surpassed 1.5 million hours without an LTI; and the multi-disciplined project sites of all contractors achieved 4 million hours worked before sustaining an LTI in late January of this year.

I have learned that success is as much about how you deliver the safety program as a top down "walk the talk" which becomes even more important than the processes you put in place. A strong safety culture makes every worker their co-workers' keeper, turning every employee into a de-facto safety officer. Each employee has the right (more like an obligation) to stop the work and question what is going on, at any time. Safety never takes a back seat to Productivity. And this mantra is something that guides everyone 24 hours a day: On and off the job.

This paper is very much a "how-to" focus with concrete examples of processes that need to be put in place and, even more importantly, how they should be implemented.

OVERALL PROJECT

Location of Project

The project is located in Senegal, West Africa as shown in Figure 1.



Figure 1: Project Location

The main facets of our engineering, procurement and construction management contract were the following:

- Build a 25 km greenfield railway from the mine to connect to an abandoned railway
- Repair 30 km of abandoned single track railway
- Repair 25 km of operating single track railway (and replace two bridges)
- Repair 65 km of operating multi-track railway (one track plus crossovers)
- Build new track facilities at mine and port for loading and unloading bulk and containers
- Build a storage building to accommodate up to 90,000 tonnes of ilmenite
- Build a container storage yard for loaded and empty containers to handle Zircon shipments
- Build ship loading facilities for export from the Port of Dakar

Senegal – Culture of NO Safety

Senegal and most of Africa is a typical of pre-1960's North American safety environment. It starts with the everyday act of going to work.

- In order to get to work by bus it's ok to hang from the side of a bus or stand on the back bumper.
- If you have a job loading and unloading a truck it's ok to sit in the back with the load.
- It's ok to overload a vehicle. You only have that one day per week to haul your goods to market.



Figure 2: No Safety Culture

However, everyone who lives in Senegal uses a common sense that all visitors have to learn when visiting Senegal. For example: Never make a step where you cannot see. There may be all kinds of hazards in your path and there are no streetlights or level sidewalks. The driving task is also complicated by the diversity and volume of traffic.



Figure 3: Expect the unexpected

Plan for Working Safely - Write it down!

Your Goal is Zero Harm. To get to your goal you need a plan that needs created in simple language and cover the spectrum listed below. The more staff that you can involve in creating this management system, the better buy-in you will have.

1. Policy and Objectives

- Create a mission statement which clearly states the Goal, the Values, and the objectives.
- Use a diagonal slice of the operational workforce along with the safety professionals and management to develop them.
- Utilize a professional facilitator that is well versed in this work to develop this document.

2. Organisation & Responsibilities

- An organization chart and clear statements defining roles and responsibilities is the next essential step.

3. Training and Core Competencies

- Hiring the best people and then training for the task at hand. In Senegal, our client wanted to create a legacy workforce that could continue to operate the mine after construction. Hiring the best local staff and equipping them to perform at a high level was an early challenge completed with great success.
- Multi-languages are spoken in Senegal (English, French and Wolof). This had to be considered as a core competency of many key personnel.

4. Managing Risks

- What are the risks and the mitigation strategies?
 - i. Do you have the right training for the work tasks?
 - ii. What PPE is required?
 - iii. Messages had to be presented in three different languages. How do we go about ensuring complete understanding?

5. Legal Compliance

- What are the legislated rules and regulations that must be complied with? This is a key component that is often undervalued in the process of creating a safety management or Occupational Safety and Health system. It is not sufficient to just cite the title: Someone has to drill down into the details to ensure compliance.

6. Design Occupational Health/Safety Systems

- This is to be the most intense focus for your work. You need to create rules and practices for your project. You must treat this system as a series of living documents that are continuously improved. At a minimum, they would need to cover these important areas
 - i. Contractor Management
 - ii. Communication/ Consultation
 - iii. Site Access & Security
 - iv. Hazard Identification/Risk Control

- v. General Hazard Controls
- vi. Site Specific Controls
- vii. Environmental Controls
- viii. Emergency Management
- ix. Incident Management & Rehabilitation
- x. Management of Change

Measuring and Assessing Performance

It is important to measure and know how well you are doing in all of the following areas:

- Reporting & Gathering OHS Data
- Assurance & Diligence
- Reporting & Trend Analysis
- OHS Records Management

Improving Performance

This is where you provide regular, widely circulated reports. Communication systems are just as important as the structure of reporting.

- OHS Promotion. Zero Harm is the goal and nothing else is acceptable. Keep safety first and foremost in everyone's mind. Here are some concrete examples:
 - Start every meeting with a safety discussion. Tailgate meetings that talk about the work and the conditions and risks must be a core function for everyone.
 - Reward for doing the right thing - like one's calling attention to changing conditions by stopping work and alerting everyone else on the job.
 - Recognize the achievement of milestones and reward by a special desert in the canteen or by handing out phone cards.
- Action Management
 - Do not allow or tolerate behaviour that is inconsistent with the values. Rule violations cannot be tolerated but it is important to find out if the non-compliance is a wilful single act or a systemic problem with your system. In many instances, the employee failure is only a reflection of a problem higher up the food chain. Perhaps there were not enough training or site inspections and audits of the workplace or they missed a gap in the system. Perhaps the supervisor is the one ignoring the systems that were put in place.
 - Positive promotion of "everyone is a safety supervisor" gives everyone an equal stake in looking out for one another and preventing unsafe acts.
- Management Review & Improvement
 - Near hit reports, performance review meetings, asking the "what-if" questions are all important to improvement, which you want to be continuous.

Continuous Improvement

Call it Quality Assurance (QA) or Continuous Improvement Programs (CIP), continuous improvement is what you must strive for in the workplace. There is one overarching mantra that has to be subscribed to by all on the project. That is to **learn from mistakes**.

The client's Project Manager, Adam Smits, reported the following on his experience with the overall project which included a power generation plant, roads and construction camp, a mineral process plant, one of the world's largest mineral sand dredges, pipelines and the railway and material handling construction (only the transport and material handling and storage are in Ausenco's scope).

"Shortly after congratulating ourselves over passing the four million LTI-free milestone, a mammoth achievement that we were all proud of ... we had two incidents that brought us back down to earth. One was due to an unsafe situation that all of us had been walking past for months without noticing an accident waiting to happen. The other injury was to a worker who with unusual resolve managed to disregard the safety measures and controls that had been put in place for the task at hand, including backups to those safety measures. It brought home the realization that there is always room for improvement in the most successful of safety programs."

Even though these two injuries were not part of Ausenco's scope which was delivered without a loss time injury, it brought home the importance of Zero Harm on the entire project. If one of us contractors on the client's project fails, then we all fail. From that failure, we must learn and improve. Zero Harm is the only goal.



Figure 4: Every Day Starts with Safety Briefing

CONCLUSION

Zero Harm is achievable. It must be your overarching goal. Safety can never take a back seat to productivity. (Note: perceptions are just as important as they quickly become the de-facto reality).

1. Plan for ZERO HARM and accept nothing else
2. Write down your plan and put the people and processes in place
3. Train - Everyone buys-in – Zero Harm is the number one priority
4. Strong two-way communications are fundamental
5. Measure leading indicators and continually correct the course
6. Walking the Talk - Those that don't are sent packing
7. Failure for one is a failure for all – it is not an acceptable option
8. Failures go up the ladder. How did this happen? Where is the disconnect?
9. Milestones - Create rewards and celebrate successes
10. Remember KISS! Simple messages work! Don't get lost in statistics
11. Learn and strive for continuous improvement

Notes:

1. The approach called Zero Harm, is often a generic term but it is also the name of a training program owned by Conexus Consulting, which supplies Ausenco safety training worldwide: To be on the lookout for Safety in all areas of our lives, not just at work.
2. "Right to Start" is Ausenco's Hazard and Risk Assessment Booklet. Every employee is trained in how to identify hazards and changing conditions that may impact the work.
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