



Sloan Career Cornerstone Center

Profiles of Chemical Engineers



Al Rego

**Program Manager
Hewlett-Packard
Palo Alto, CA**

Education:

B.S. - Chemical Engineering, University of California, Berkeley
M.S. - Civil Engineering, Stanford

Job Description:

Program manager in the corporate environmental management department

Advice to Students:

"Going back and getting the advanced degree has more than paid for itself, from a financial standpoint, as well as from a personal growth and a professional standpoint."

Video Transcript:

"I work on environmental health and safety assessments and audits, where we go out and speak to general managers and line managers at each of our manufacturing sites and assess the maturity of their environmental health and safety programs. I also work on developing and rolling out and communicating ergonomics information. Most of the skills that I'm using now are the process skills that you learn in chemical engineering, not so much from a chemical process standpoint but the process way of thinking, the engineering method of how you develop programs, how you think logically through what needs to be accomplished and what are the steps that it will take to get to that point."

Interview:

Rego: My name is Al Rego. I work in the corporate environmental management department at Hewlett-Packard. I work on environmental health and safety assessments and audits. We go out and speak to general managers and line managers at each of our manufacturing sites and assess the maturity of their environmental health and safety programs. I also work on developing, rolling out, and communicating ergonomics information throughout the country. One of our major initiatives in HP this year and next year is a health and safety initiative - increasing awareness of ergonomics and the role that ergonomics plays in our work environment.

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Prepared as part of the Sloan Career Cornerstone Center (www.careercornerstone.org)
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Q: What does a chemical engineer do with health and safety and ergonomics?

Rego: Most of the skills that I'm using are the process skills that you learn in chemical engineering. Not so much from a chemical process standpoint, but the process way of thinking-the engineering method of how you develop programs, how you think logically through what needs to be accomplished, and what are the steps that it takes to get to that point in a logical progression. You then apply that in a business sense. So rather than looking at what your end product has to be in terms of a chemical plant, you determine what your end product needs to be in terms of a business outcome, and step back through the steps that are going to get you to that point.

Q: Does your work focus on a specific product or product line?

Rego: We really don't concentrate on the product lines at HP per se. What we look at are the methodologies and the mechanisms that are in place to protect HP employees, the communities, and the environment. We look at the health and safety and environmental programs. We're looking to ensure that each of our manufacturing sites has programs in place to ensure that management is aware of potential issues that deal with environmental health and safety issues. We are an integral part of the communities in which we operate. As part of that, we want to make sure that our operations are safe and environmentally sound. We also try to make sure that our products are environmentally sound. We have a group, comprised of representatives of each of our business lines, that is coordinated through the department that I work in. It looks at our products and makes sure that they are safe. I'm not involved myself with that group. I'm more involved with looking incrementally at our safety programs at our sites, auditing our sites, and working with the general managers to help them understand what the status of their programs are and how they can improve. When I started working at HP, I was looking at some of the remediation problems that we were facing. Along with most of the other companies in the electronics industry, practices in the 1950s and 1960s, which were standard industry practices at that time, led to some unfortunate instances of environmental contamination. One of my initial jobs at HP was looking at those situations and helping to expedite them so that we don't have any lingering contamination.

Q: What kind of technical skills did you use when you looked at those remediations?

Rego: A lot of basic chemistry, basic chemical engineering-Henry's Law, Raoul's Law. In looking at the type of contamination we were dealing with and how that contamination interacts with the environment, I used a lot of geochemistry to determine the interaction of those chemicals with the soils and identify the types of soils we were dealing with. From that aspect, there was a lot of application of chemical principles. There was also application of chemical engineering in the solutions. By far the most prevalent solution to ground water contamination, for example, is pump and treat. Pump it out of the ground, treat it with some mechanism at the surface, and either discharge it at the surface or re-inject it. The treatment process is a chemical engineering process. Either you're doing carbon absorption or you're doing air stripping or something along those lines. So there are applications of chemical engineering principles to those aspects of remediation.

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Q: Who do you work with on a day-to-day basis?

Rego: Our teams are aligned to bring together the skills of various people. I could be working on some projects with attorneys-I do a lot of work with attorneys. I work with toxicologists. I work with biologists. It depends on what the particular problem is. When I talk about remediation, the group that I worked with consisted of geologists, chemists, people with regulatory backgrounds, legals, both paralegals and inside counsel, and outside counsel. I also did a lot of contractor management. I think the biggest part of my job was managing contractors.

Q: Are there any courses that you wish you had taken in college?

Rego: There are a lot of skills I would've liked to have gained. I'm not sure that the courses that I would like to have taken were available. I didn't know to look. The things I would have liked to have been better at are negotiation skills for contracts and contractor management skills. Those are things that I ended up learning on the job. They are things that prove very valuable once you have them in your repertoire. They are the reason that I'm working at HP today. I had those skills when I came here-I was hired for those skills. My technical background was important because it enabled me to represent HP in developing the solutions to some of its remediation problems with the contractors. The contractors proposed things, and I had to work with them from a management standpoint, as well as making sure that what they were proposing-from a technical standpoint-was the right thing to do.

Q: What kind of skills do you need to successfully do your job?

Rego: The key skill for any of the work I do now is communication. You can have the best ideas in the world and be the most personable person in the world, but if you can't communicate your ideas well-and in a fashion that people can understand and be willing to negotiate with people-you're going to have a difficult time. There is a lot of negotiation, even among the HP team, as to what the right thing to do is on any given topic. You have to be able to listen to what people are telling you, identify where the gems of ideas are, as well as be able to see what perspective people are coming at a problem from. Again, one of the things that we do is pull together very diverse teams with lots of different sets of skills and the key to managing that effectively is to really listen and understand where each person is coming from. Each person has a different background and different sets of concerns based on his or her particular specialty. Being able to gel all of those into a good, solid, sound approach is really important.

Q: Do you do any work with international concerns, either clients or corporations?

Rego: The international work that I've done has been mostly in Asia Pacific. It's been dealing with both remediation, as well as with programs and cultures from a health and safety standpoint. When you're dealing in different cultures, you not only have to understand and listen to where people are coming from, but be willing to accept that they're looking at something from a much different standpoint than you are. The criticisms that I've heard, from folks who are American and have gone overseas-both to Europe and to Asia-to work on programs, is that we bring the American way of doing things. And the American way of doing things is very egocentric to them because we do have a different approach. We have a very

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swift approach. Sometimes, we don't stop to think what the impact on the different culture is. It doesn't mean that we have the best approach, it's just our way of doing things and we can't always impose that. When we try to impose that, if we're not working as a team, we can find ourselves fighting an uphill battle because it just doesn't work.

Q: What made you consider chemical engineering or engineering as a profession?

Rego: I sort of backed into it. I always enjoyed chemistry in high school-junior and senior year in high school I took chemistry classes. I guess senior year, when everybody was trying to figure out what college they wanted to go to and what majors to take, I knew I wanted to go to University of California, Berkeley. At Berkeley, it was easiest to get into the college of chemistry as a freshman into the major, rather than transfer in later. So I decided that chemistry was something I wanted to do. I also had an inkling that engineering would help me make more money. The combination of chemical engineering sort of led me to that department.

Q: Did you enjoy school?

Rego: It was hell. Chemical engineering at Cal is no cake walk. But I'm also very proud that I made it through. It taught me a lot of lessons of how to deal with having to get a lot done at once, and dealing with very bright people on a curve. It was a struggle. It's not an easy subject. The technical aspects of it are not easy. Looking back, from where I am now, it was more a learning experience of how to deal with pressure-the pressures that you see now in the work place. It's a reality. You see those same pressures in the work place-having to deal with a lot of things, having to deal with really bright people, and having to get a lot done, and having a lot expected of you. One of the things that I did at Cal that really helped me balance out my load from a technical standpoint-as well as now from an application standpoint-is a program where you could get what is basically a minor in business, business organization, and enterprise. I took half of those courses in organizational behavior, and economics and business-aligned courses so I could have some balance to the technical. That was valuable. I use a lot of those skills now.

Q: Would you recommend that type of balance to others?

Rego: Definitely. I think in today's market in the U.S.-especially here in Silicon Valley-having a business slant and having the basic knowledge of the business that you're working in is extremely important. It's a very competitive environment now for all engineers. Having a business background and being able to talk to general managers and line managers in business terms, which is how they're being measured, is one of the key things I've learned. You've got to talk to people in the language that they're being measured in. If I were to go out and talk to folks from a very technical standpoint without being able to offer a business reason for what I'm suggesting, they would have no real incentive to work with me to accomplish it.

Q: How did you find your first job?

Rego: The job that I went to from school I started when I was a junior. I got a job in a small analytical lab, I basically started washing glassware. I had hoped that it would lead to more. I had been working in retail and decided to start getting some kind of experience that I can put

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down on a resume. I got a job in an analytical lab doing environmental chemistry, but basically as the `gofer.' I did a lot of glassware stuff. I filled in on the atomic absorption spectrometers and the GCMSs. As the chemists were too busy to do it, they started giving me more and more of that type of work. By the time I was a senior in college, I was doing a lot of that, very little of the glassware stuff. So I'd `graduated' in a sense. When I graduated from undergrad, I was offered a position with them that I took while I was looking for something that was more engineering aligned. That came about three months later-I was offered a position with Bechtel, a very good position that got me experience as a chemical engineer.

Q: Why did you choose to get a master's?

Rego: Everything just seemed to fall into place. I can't really pinpoint anything other than I'd been working in environmental engineering consulting for about four and a half years and the timing just felt right. I felt that I needed to have a further degree to be able to advance myself within the working environment, within the professional environment. It just seemed to be the right thing to do at that time. It was the best decision I made for myself. Going back and getting the advanced degree has more than paid for itself, from a financial standpoint, as well as from a personal growth and a professional standpoint. I was secure enough with what I had been doing up to that point that a career in environmental engineering as an engineer would have been pleasing to me. I knew what I wanted to go back and study. Since then, I've completely changed careers, but that's how it goes.

Q: You have two degrees and you have been working for a number of years. What do you do now to stay current, education-wise?

Rego: The key types of training that I seek out now are business oriented. I've recently taken courses in marketing, market segmentation, and negotiation. I'm at the point now where I'm moving more out of being a technical person. I no longer see that as necessarily what I need to do for myself from a personal standpoint. From a professional standpoint, I've established myself here as being able to do that if I want to, but I want to move more into management. I'm managing programs now and I want to increase the level and scope of those programs. The way to do that is to get those types of business skills.

Q: Where do you ultimately see your career path going?

Rego: It's hard to say. One of the nice things about HP is that it offers you the opportunity to do a lot of different things. The doors are pretty much wide open. If you can find an area that you can contribute in and can make a case for it, management is willing to give you a chance. What I'm looking for right now is an opportunity to deal more with general managers, senior managers, and executive managers. I'm getting that opportunity. I've voiced my opinion that I'm good at that and that's something I want to do more of. They're willing to give me a chance, which is why I'm putting a lot of energy into developing my skills in these areas.

Q: What skills do chemical engineers bring to management that others may not?

Rego: I focus on the process of how we get from where we are to where we need to be, as opposed to theoretically thinking this is where we ought to be and then moving on to the next thing. I can look at what needs to be done, and present a compelling case as to why we need

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to get there and the steps that we need to take along the way. That engineering process, which you definitely learn in chemical engineering, is something that is very valuable, especially for a very analytical company like HP. People are not only looking for where we need to be, but how are we going to get there. I think liberal arts majors may get a plan and an approach, but it's not quite the same analytical approach that you get from engineering.

Q: Are you involved at all in electronics or other new media?

Rego: I spent about two months of my time this year developing Web pages. It is something that is a key communication device, both within and outside at HP now. We have an Intranet that's very extensive. It goes to almost all of our sites worldwide. We have 100,000 people who have access to our Intranet. Communicating information on our ergonomics and safety programs is done in house, with me primarily being the lead. I spent a lot of time learning what is involved, so that I can understand it and develop the initial roll out. From this point on, I'll probably hire a contractor to maintain it, but now I know enough about what's involved that I can manage the process.

Q: What is a typical day like for you?

Rego: This morning I had to give a presentation to executive managers on the status of some programs that they had asked about. They have not had a presentation like that in about six or nine months on this particular topic. I walked in there a little hesitant because I knew that not all of the information I had to deliver was good information. It involved working with them, laying things out on the table, and offering solutions for those things that need to be improved. I have to spend some time this afternoon preparing for an audit, which is coming up where I will be the lead auditor of this team of three people. We'll be going to one of our major distribution operations and looking at their processes and programs-again, from a process and program standpoint-to offer input on where they can improve and what they're doing well. Those programs involve health and safety of the employees and the communities that we work in, and making sure things are environmentally sound. From a remediation standpoint, a typical day would be dealing probably 60% to 70% of the day with contractors and managing their workload, making sure that they are on track, and working with agencies. I've done a lot of work with governmental agencies that are looking at HP to make sure that what we're doing makes sense from their standpoint. I do a lot of community work. I work with the neighbors who live around our plants making sure that, if we do have a situation that in any way impacts them, they are involved in what we're doing. We don't hide anything-it's just not our way of doing business. So there's a lot of public relations involved as well.

Q: We think of HP as an electronics company. But what else is HP involved in?

Rego: HP has a number of business lines. They make calculators and they make printers. Printers are a huge part of our business. We also have a medical branch that is a significant business line for us. Components, our components line includes everything from little LED displays to tiny little lights that HP has developed that are now even being used in some automobiles taillights. We have HP Labs, which really focuses on cutting-edge technologies for all of our business lines. Anything that may be happening in the year 2050, they're trying to jump start now. We have a lot of telecommunications things going on. We're involved with interactive television to a certain degree. The organization that I belong to, although we're

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corporate and environmental management, we're housed within a business line that's called the test and measurement organization, where they build and design equipment that measures things like the throughput on telecommunications cables. HP's original business line was actually designing and building devices that measured electronics.

Q: How are chemical engineers involved in all these products?

Rego: All kinds of different ways. We have lots of applications of traditional chemical engineering like looking at how chips are designed, but we don't do a lot of chip design and processing and building anymore. Those are still basic chemical engineering processes that we need to be able to deal with our suppliers on. We have to have the technical expertise in-house to know what our suppliers are giving us. We need to be able to communicate to our suppliers what we need and why. HP has a tradition of building alliances and working with suppliers as partners. Part of that is bringing them onto a team so that we're communicating what our end goals are.

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