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and Junior Professional Officer Programs*

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Evaluation of the United States Support Program's Internship and Junior Professional Officer Programs

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Abstract

The U.S. Support Program (USSP) to International Atomic Energy Agency (IAEA) Safeguards established a program of one-year paid internships for students and recent graduates. The program was in effect from 2002 until 2006 with a total of forty-one U.S. citizens and permanent residents placed in the IAEA. The USSP created a Junior Professional Officer (JPO) Program in 2005 that replaced the internship program at the IAEA. The JPO program creates opportunities for U.S. college graduates to become IAEA employees for a period of one to two years to help increase the effectiveness and efficiency of safeguards. The twenty three former and current JPOs work in varying fields such as software development, information collection and analysis, non-destructive analysis systems, and unattended monitoring systems. This paper will look at the impacts of the USSP internship and JPO program on the interns and JPOs, the U.S. government, and the IAEA. Academic backgrounds, past involvement in nuclear fields, program assessment, and post-program positions were recorded and analyzed through two studies using questionnaires sent to former interns and former and current JPOs. This paper will discuss the effects of the programs on the careers of the interns and JPOs, present the evaluations of the internship and JPO Programs, and report the recommendations for changes.

Introduction

The formation of the USSP internship and JPO programs created entry level positions for U.S. college graduates at the IAEA. Both programs allowed young professionals to work at the IAEA with little to no prior experience in safeguards. The internship program was open to students and college graduates, whereas the JPO program requires a college degree. JPOs are placed at the P1 or P2 level, must be less than 32 years of age, and have zero to two years of prior experience. The internship program ran from 2002 until 2006 and consisted of 41 interns with varied academic background and work experiences. Similarly, the JPOs are a diverse group. As of July 2011, there were 23 former and current JPOs. This study was undertaken to assess the impacts of the intern and JPO programs to ensure that the financial investment made by the U.S. government is worthwhile.

Background Information

The USSP was established in 1977 to augment the IAEA's regular budget for safeguards activities with U.S. sponsored expertise, equipment, and techniques. The USSP assists the IAEA in its mission to verify that nuclear material placed under IAEA safeguards is not diverted to non-peaceful purposes. The USSP is one of twenty-one Member State Support Programs that strive to improve the effectiveness and increase the efficiency of IAEA safeguards. The Subgroup on Safeguards Technical Support (SSTS) is the U.S. government interagency group

that approves and authorizes funding for USSP tasks. The International Safeguards Project Office (ISPO), located at Brookhaven National Laboratory (BNL), performs the day-to-day technical and administrative project management activities for the USSP, including proposal solicitation, task progress and budget reporting, and technical oversight of tasks (Nook and Hoffheins, 2008).

The USSP's goal for the internship and the JPO programs was the formation of entry level positions at the IAEA, the provision of human resource support to perform basic yet essential work, and the creation of access to academic institutions as another source of USSP support to the IAEA (Pepper, Gaetano, and Lepingwell, 2003). The USSP and ISPO aimed to increase young people's awareness of job opportunities in the nuclear industry and nonproliferation. The USSP also intended to encourage interns and JPOs who participated in the programs to consider the IAEA for their future employment, bring their experience to government and national laboratories, and help further support the nuclear industry.

Methodology

Surveys were used to determine the impact of the internship and JPO programs on the IAEA, the U.S. government, and the interns and JPOs. Surveys provide a means to collect information regarding the experiences of interns and JPOs in a way that allows for anonymity and openness. The May 2011 survey of the internship program was the initial study. It was conducted under an independent study graduate course at the State University of New York at Stony Brook. This research used open-ended questions that addressed the backgrounds of the interns, individual experiences, and post-program opportunities. The JPO program study focused on the former and current JPOs as of the summer 2011. It took place from June to August 2011. The JPO study also used a series of open-ended questions that allowed the current and former JPOs to evaluate the impacts of the program.

I. Survey for the Internship Program

A questionnaire containing nineteen open-ended questions was prepared. The questionnaire was sent to all 41 of the former interns employed from 2002 through 2006. The interns were contacted via e-mail, cell phone and Facebook. Five questionnaires were returned because of the lack of a current address; one intern declined to respond. Thirty five completed questionnaires were received, yielding a 97% response rate from those who received the questionnaire. The returned surveys were addressed to people living overseas. It is assumed that the lack of response was due to the lack of a current address. The USSP had lost contact with these five individuals. However, the percentage returned was large enough to represent the entire sample of the population during the four years of the program.

II. Survey for the JPO Program

The research was conducted by an intern sponsored by the National Nuclear Security Administration's Next Generation Safeguards Initiative program and was modeled on the internship study and questionnaire. Former and current JPOs were contacted through email and asked to fill out an attached questionnaire of twenty questions. The questions were open-ended with the exception of the two ranking questions, "What elements were most necessary to perform well in your JPO assignment?" and "Were you satisfied with your overall JPO experience?" One JPO was interviewed in person to further discuss his experience working in Vienna and his

current employment. Questionnaires were sent to the 23 former and current JPOs. Twenty questionnaires were returned creating an approximate 87% response rate, as well as a strong foundation for analysis. The questions addressed the JPOs' educational and work background, their experiences while in the program, and their professional activities following the end of their assignments at the IAEA.

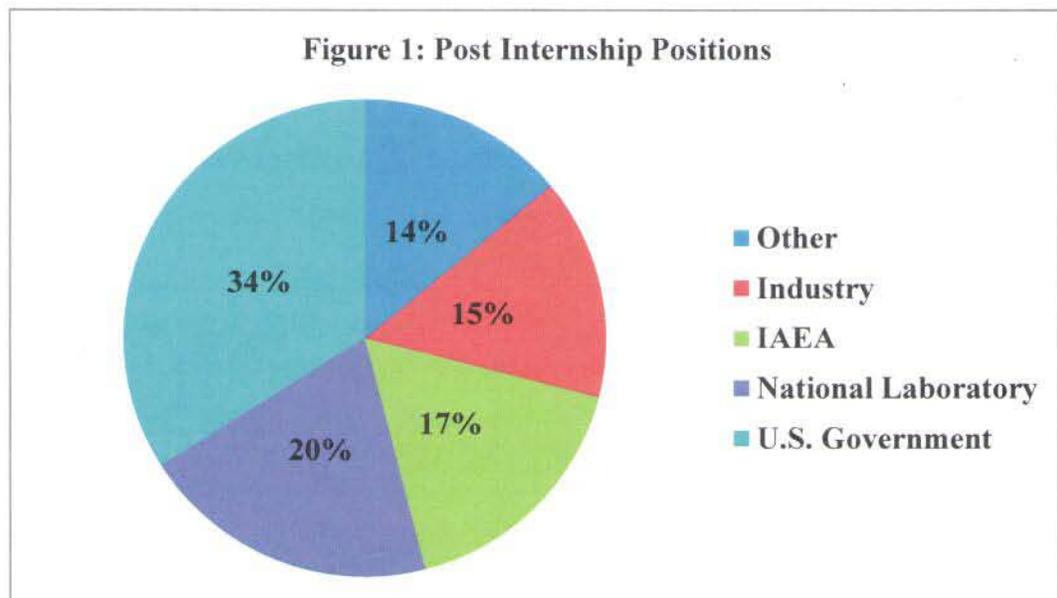
Results

The results of both surveys were analyzed through categorized Excel spread sheets. The results of the studies showed that the internship and the JPO programs benefited the U.S. government, the IAEA, and the interns and JPOs in different ways. The following sections will discuss the impacts of the programs on the U.S. government, the IAEA, and the interns and JPOs. Unless otherwise stated, the results reflect the status as of July 2011.

I. Benefit to the U.S. Government

The U.S. government has benefited from the internship and JPO programs by gaining well-informed citizens and employees through those who returned to the United States and used their IAEA acquired skills and education. The statistics presented in this section reflect an excellent return on the U.S. government's investment in the internship and JPO programs.

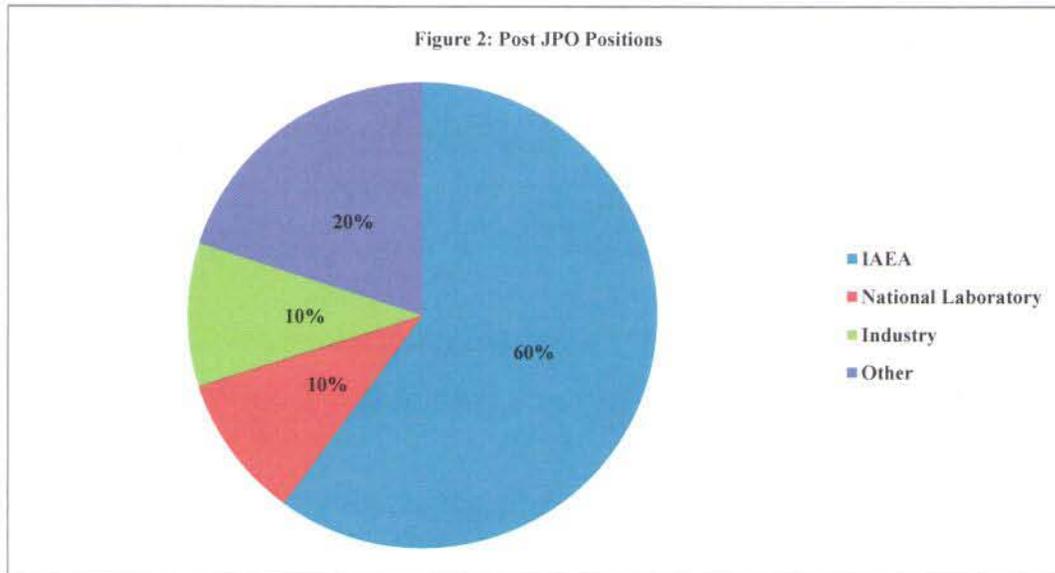
Thirty four percent of the intern survey respondents went on to careers in U.S. government agencies, 20% took jobs at national laboratories, and 17% are working at the IAEA. Following the end of their assignments, a total of 40% of the former interns returned to the IAEA as staff members, Cost-Free Experts¹ (CFE), consultants, or JPOs for short or extended periods of time. These placements increased U.S. representation and contribution to the IAEA. Figure 1 illustrates the employment of interns as of May 2011.



In approximately 2009, the SSTS determined that human resources are a high priority to ensure the IAEA has necessary expertise and capabilities in its workforce. Between the extra budgetary human resources of CFEs and JPOs, the SSTS believes that JPOs are the best investment because

they have the potential to contribute to international safeguards for more years in the future. The USSP should continue to fund the JPO program to continue the preparation of young professionals for future positions with the IAEA Department of Safeguards.

Out of the twenty JPOs who responded to their survey, half already completed their assignments at the IAEA and half were currently employed at the IAEA. Of the ten former JPOs, six took jobs at the IAEA, one took a position at Oak Ridge National Laboratory, one at Canberra, another at a software development company, and the last took a job in publishing. Figure 2 illustrates the post program positions of the former JPOs. In March 2012, one intern, who was serving as a CFE, became a regular staff member. One JPO became a regular IAEA staff member in May 2012.



As of December 2011, one more JPO, who also served as an intern, joined the IAEA as a regular staff member increasing the percentage of former interns who work at the IAEA to twenty percent and the former JPOs who work at the IAEA to seven of the ten former JPOs. Also, one intern who started in 2002 left the IAEA in 2011 with only a short break in service during her nine year tenure. This maintained the percentage of former interns working at the IAEA at seventeen percent. Two of the former interns have since moved from the Department of Safeguards to the Department of Safety and Security. The programs enabled the IAEA to employ young professionals with the qualifications and skills to work on a variety of projects at no cost to the IAEA itself. These individuals were trained in the technical areas associated with the IAEA's work (e.g. nondestructive analysis, containment, surveillance, and information collection and analysis), creating a pool of applicants for future positions.

The typical cost of an intern was approximately \$60,000 per year, including stipend and administration costs, although some interns were paid more based on education and work experience. Unlike interns who were the employees of and paid by BNL, JPOs are IAEA staff members and have the same privileges and benefits. This change corrected the issues that many interns spoke about, such as having to enter the Vienna International Center (VIC) through the visitor's entrance. Although it was not mentioned in the surveys, the JPO program offers medical

and pension benefits. The typical cost of a JPO is about \$140,000 per year, including salary, benefits, and program costs.

The employment of former interns and JPOs in government and national laboratory positions has brought skills and knowledge acquired at the IAEA to the United States work force. Both programs also increased U.S. presence and representation at the IAEA during the assignment and led to hiring following the assignments. Alongside these benefits, the U.S. government and the USSR benefited through the creation of the internship and JPO Programs due to the growth in awareness of the nonproliferation industry and employment opportunities. Fifty four percent of all intern respondents had not been involved in or had not considered the rewards of working in nonproliferation or in the nuclear industry prior to their internship. The remaining 46% were aware or involved through their university courses (nuclear engineering, physics or nuclear non-proliferation). Towards the end of the internship, nearly all the interns wanted to continue working with the IAEA or expressed a desire to continue working in similar fields. Of the former and current JPOs, 90% were involved in nuclear related studies or fields prior to their assignment. Ninety percent were also aware of the IAEA prior to joining the JPO program. It should be noted that eight of the JPOs had been in the internship program and therefore would have had knowledge of nonproliferation and the IAEA prior to their assignments as JPOs. The JPO program created awareness of opportunities for 80% of former JPOs and similarly to the former interns, nearly all wanted to continue working with the IAEA or expressed a desire to continue working in similar fields. The U.S. government and the USSR benefited significantly from the internship and JPO Programs through a more aware and skilled American workforce.

II. Benefit to the IAEA

The interns and JPOs came from diverse educational backgrounds that brought interdisciplinary perspectives to IAEA assignments. Many of the former interns and JPOs hold degrees in engineering, political science, and computer science. All of the former and current JPOs hold bachelor degrees, as required by the JPO program. As of July 2011, 14 of the 23 JPOs hold at least a Master of Arts, a Master of Science, or a Master of Business Administration. Among the 14 JPOs that have Master degrees, one also has a Doctorate degree.

Prior to starting their internship, 60% of the respondents were not aware of the IAEA was or what it did. Although nearly all JPOs stated that they were aware of the IAEA prior to their assignment, the JPO program increased their awareness and understanding of the organization and its functions. After the internship and JPO programs, both interns and JPOs were more aware, for the experiences they had at the IAEA gave them a deeper understanding of the inner workings of the IAEA, the United Nations (UN) and international organizations in general, and recognition of the role they play in the international community. When asked "Did your experience change your perception of the United Nations Organization/IAEA?," a former intern responded: "Yes, working at the IAEA gave me a firsthand look at the driven people that are passionate about helping each other and creating safe nuclear energy. I had formerly thought that the UN was more bureaucratic in nature, with little social or scientific impact on needy countries or people." A former JPO, who was also a former intern, stated that "before the internship, I was pretty unaware of the mission of the IAEA, so the internship and JPO certainly made me realize how important it is to work towards the IAEA's mission."

Eight interns who participated in the program have become JPOs, and several of the former interns and JPOs have become Cost-Free Experts after their assignments. As of July 2011, six of the former interns and six of the former JPOs are employees at the IAEA. The internship and JPO programs have helped the IAEA select staff members from a known pool of candidates. Also, their previous appointments shortened the learning curve because they had an understanding of the IAEA's procedures and because they were usually hired into positions related to their internship or JPO position. Both programs benefited by providing additional employees funded by the U.S. Support Program at no cost to the IAEA. The interns and JPOs are capable of working independently, perform basic yet essential work, and free more experienced staff members to focus on more complex work. After concluding their assignments, many of the former interns and JPOs entered the IAEA workforce as trained individuals, bolstered by their assignments.

III. Benefit to the Interns and JPOs

The survey indicated that the motivations for the respondents to participate in both programs were the opportunity to work for an international organization, to experience working in a multicultural environment, and to live overseas and experience a new culture. As one intern described, "For someone who has never even owned a passport, the internship allowed me not only to pursue my career on levels that I never would have imagined, but it also gave me an opportunity to travel and see the world. Due to financial constraints, I would not have been able to get this kind of hands-on international experience if it had not been for the USSP." A JPO stated, "I wanted to live in Europe and I was ready for a new experience. I also wanted to be part of a larger organization doing something helpful for humanity." Both programs provided opportunities for the interns and JPOs to gain new cultural and work experiences abroad. The programs offer a rare opportunity for young professionals to work abroad with a competitive salary.

Eighty nine percent of the respondents answered that their participation in the internship program made them aware of new career opportunities and more specifically careers related to IAEA Safeguards, United Nations Organizations, national laboratories, and the U.S. Department of Energy. Eighty percent of former JPOs stated that their assignments at the IAEA made them aware of new opportunities within the nuclear industry. Seventy one percent of interns and 80% of former JPOs tried to follow up on these opportunities to remain at the agency or in the field. Both programs allowed the participants to learn about and try to participate in nuclear safeguards related positions at the IAEA, in the U.S. government, or in national laboratories.

All of the respondents stated that they have acquired new skills while working at the IAEA, which were valuable and transferable to their current positions. Some of the skills identified were technical/work skills in information technology, such as software configuration, database management, quality assurance and control, knowledge of the Carnegie Mellon² capability maturity model, web development and programming. Others skills, such as open source collection techniques, knowledge of the nuclear fuel cycle, systems integration, information management and analysis, writing and communicating effectively, presentation skills, and the value of prototyping systems, were also listed. Many of the respondents placed emphasis on the importance of the interpersonal skills they acquired as a result of their experience at the IAEA

such as teamwork, diplomacy in the workplace, cross-cultural skills, communication, and the ability to handle stress in dynamic work environment.

Evaluation of the Programs

The internship and JPO programs proved beneficial by providing the participants with varied cultural exposure, experience within the nuclear field, networking opportunities, educational enhancement, and follow-up career prospects. Both of the surveys conducted found that the programs had positive effects on the IAEA, the U.S. government, and the participants. The intern and JPO studies asked, “Were you satisfied with your overall JPO experience?” Table 1 provides the results of this question.

Rating	Interns Out of 35 Responses	JPOs Out of 10 Responses
5- Experience far exceeded expectations	21	3
4- Experience exceeded expectations	8	1
3- Experience met all expectations	4	3
2- Experience met some expectations	2	3
1- Experience failed to meet Expectations	0	0

Of the 35 intern respondents and the ten former JPO respondents none ranked their program lower than a two. Sixty percent of the respondents felt that their overall experience as an intern at the IAEA far exceeded their expectations, 23% felt that it exceeded their expectations, 11% felt that it met their expectations, and 6% of the group answered that their internship experience only met some of their expectations. Of the ten former JPOs 30% of the respondents felt that their over-all experience as an intern at the IAEA far exceeded their expectations, 10% felt that it exceeded their expectations, 30% felt that it met their expectations, and 30% of the group answered that their internship experience only met some of their expectations.

The differences in scores between the two programs cannot be explained in certainty, yet it should be noted that there were only ten former JPOs during the time of the study as opposed to the 35 intern respondents, providing more accounts of program experiences. Also, the internship program did not have a degree requirement, creating an otherwise unattainable opportunity for men and women who did not have the academic experience generally required within this field. This opportunity may have influenced program evaluation in the internship that did not reflect in the JPO study due to the higher academic requirements in the latter. One last possibility that may explain the difference in experience rating was that whereas 60% of interns did not know about the IAEA and its mission prior to their assignment, only 10% of JPOs were unaware. The greater awareness of the IAEA prior to their JPO assignments may have created a certain set of expectations that 60% of the interns did not hold.

The surveys of both the internship and JPO programs included the question, “What would you change about the program?” Many of the interns and JPOs wrote that they did not think their programs should change at all. A few of the interns and JPOs noted concerns that they felt were slight issues. Several former interns stated that they would have extended the length of their programs. An intern stated, “I would advocate for the program to be a bit longer (18-24 months).” Another intern wrote, “Make the intern a staff member with benefits.” The formation of the JPO program addressed both these concerns for the JPO assignments range from one to two years and the positions came with benefits. Several former JPOs that responded to the questions sought aid in finding employment on return to the United States. One former JPO stated, “What would have made the JPO program even more attractive and meaningful is if there was a more systematic post-JPO job transition.” Another stated that a potential improvement of the JPO program would be a reduction in the “time it takes between applying to the JPO program and notification.” Although there were several changes proposed, it should be noted that 100% of the interns recommended the program based on their experiences in the internship program. 100% of the former JPOs also recommended the JPO program to others. Although the ratings varied between respondents and programs, both USSP groups had overall positive experiences and would recommend the programs to others.

Conclusion

The results of the surveys presented participants’ opinions, backgrounds, and positions following their assignments, allowing for an analysis of the programs’ value to the U.S. government, IAEA, and the interns and JPOs. The internship and JPO programs received high-ratings from the respondents who would all recommend them to others. The benefits to the stakeholders often overlap, for example the skills and experience gained by the participants also benefit the U.S. and the IAEA. The preparation of the workforce benefits the IAEA, the U.S. government, and the individuals selected for employment by the agency. The internship and JPO surveys showed that the programs were of benefit to the U.S. government, the IAEA, and the participants themselves because of the creation of entry level positions at the IAEA, the development of experienced young professionals in the nuclear field, increased representation of the USSP at the IAEA, better awareness of the IAEA and international organizations, and a larger, better prepared work force for the Agency and the U.S. government.

Although this paper addressed the impacts of the USSP’s internship and JPO programs, there is room for future research through follow-up studies on the recommendations given by the former interns and JPOs. The analysis was based on the responses of the former interns and JPOs, leaving open an opportunity to survey how the IAEA mentors and ISPO and SSTS view the benefits and rate the program.

End Notes

¹Cost free experts are individuals whose work at the IAEA is sponsored by member states because the IAEA’s regular staff lacks the expertise or the time required to perform the work.

²“CMMI (Capability Maturity Model Integration) is a [software development] process improvement approach that provides organizations with the essential elements of effective processes, which will improve their performance. CMMI-based process improvement includes identifying your organization’s process strengths and weaknesses and making process changes to

turn weaknesses into strengths.” <http://www.sei.cmu.edu/solutions/softwaredev/?location=main-nav&source=1395>

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