Non-Nuclear Options for Engagement of Personnel Associated with the DPRK Nuclear Program

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When considering options for the employment of personnel from the DPRK nuclear weapons program, it is important to also consider what options are available in non-nuclear disciplines. It may be difficult to redirect some specialists to non-nuclear areas, but a number of opportunities may exist. In particular, there may be opportunities that can help meet urgent needs within the DPRK.

This paper looks at a number of disciplines and suggests areas in which they might be employed in the future.

Reactor Control Systems Specialists

For the DPRK to make any substantial economic progress, a stable, distributed electrical grid will be necessary. An important element of having such a grid is control systems. Engineers and technicians who have experience working with nuclear reactors may be retrained to work on the following types of control systems:

- Electrical Power Stations
- Electrical Power Grids
- Power Generating Stations (including hydropower, wind power, and fossil fuel)

In addition, control systems are a key element for the distribution of many other key commodities. Designing these distribution systems and developing control systems to monitor them could be another task in the following areas:

- Water, Oil, or Gas Pipelines
- Water, Oil, or Gas Distribution Networks

Machinists and Similar Industrial Specialists

An element of improving economic performance will depend on better production capabilities and a reliable source of quality spare parts for a variety of industrial sectors. Individuals who have worked as machinists and in related industrial areas could be involved in the following:

- Vehicle production (cars, tractors, trucks, ships)
- Civil support infrastructure (including power stations, pipelines)
- Steel/metal material production
- Iron/steel products (such as pipes, plates).
- Small-scale machine shops for specialty parts and products, such as equipment parts, automobile parts, pumps, filters

Maintenance laborers/Transportation workers

These are general skill positions, so should be able to find new employment in just about any sector of the economy and society. Some consideration might be given to training programs that might either increase skill levels or make workers more aware of safety and other standards.

Chemical Specialists

Competency in the chemical sciences can be applied to a broad number of tasks in industry, government, and academic sectors. Individuals who are specialized in fields such as radio-chemistry that are very closely associated with nuclear activity may need more persuasion to move into other chemical fields or even some retraining to make the transition possible. Chemical scientists and engineers can also help pursue new economic areas in which the DPRK has expressed an interest, such as processing plastic and electronic waste. Some possible applications of chemical expertise include:

- Chemical analysis for quality assurance/quality control in the production and regulatory standardization of pharmaceuticals, solvents, lubricants, synthetic materials, etc.
- Processes for disposition and safe handling of plastic, electronic, and other non-nuclear toxic waste

Nuclear Specialists

Nuclear specialists may resist moving too far outside their areas of expertise. Therefore, it will be important to identify new work that draws on their core knowledge, but applies it to different challenges. Possible areas include:

- Medical imaging for diagnostics
- Environmental data measurement and analysis (including isotope hydrology)
- Analytical forensics (using nuclear-based tools) including for environmental monitoring
- Food safety food nutritional analysis and improvement
- Non-destructive evaluation of materials, structures, etc.

There may also be a number of regional needs where nuclear-based data analytical techniques could be employed, however these would come into play at a later stage.

- Broad-area sea water quality analysis and contamination tracking/evaluation
- Fish and marine life contamination analysis
- Air environmental analysis
- Regional energy distribution and regulation of cross-regional energy supplies

Another area of possible application is quality control and regulatory standards evaluation of manufactured products and materials. This will be an important aspect for eventual expansion of cross-regional trade.

Potential Utilization of Nuclear Personnel at Kaesong or other Industrial Parks

Many of the skill areas listed above could be utilized at Kaesong or other planned industrial parks. In addition to providing companies with the opportunity to hire workers who may have some experience in relevant scientific, engineering, and technical areas, working in Kaesong could help DPRK personnel adapt to more modern employment practices and to learn about new areas to which they can apply their knowledge.

Being part of the work force at Kaesong could be seen as a privilege or reward to those who have contributed to the nuclear weapons program. At the same time, however, the employment practices in force would help North Korean workers understand better how the rest of the world functions. Kaesong has a regular 48 hour work week and a system of basic wages, extra pay, incentives and rewards. There is a minimum monthly wage, but companies are given substantial latitude to determine incentives and rewards.

Kaesong also provides a number of basic services that could be used a training ground. For example, working on railway and road construction and maintenance would teach skills that could be applied elsewhere in the DPRK. In the area of electric power and telecommunications, workers could be involved in monitoring power delivery, and installation of power and communications to new industrial facilities. Kaesong also has a water supply plant, a sewage disposal plant, and both an incinerator and a landfill for disposal of waste materials. All of these require a range of skills from laborers to scientists who can monitor the environment and assure safety standards are being met. According to the Kaesong Industrial Site web page (http://www.kidmac.com/), the disposition of waste materials is already the responsibility of North Korea. However, the methods of disposal could be reviewed by a scientific panel that could recommend improvements, the development of new processes, or better environmental controls.

One possible idea would be for workers from Yongbyon to spend 3-5 years at Kaesong, and then take the experience they gained to other sites that the DPRK is trying to develop economically.