

# ATOMS FOR PEACE

## TARGETING TECHNICAL COOPERATION FOR RESULTS

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*“The manner in which technical assistance is provided ... needs to be critically re-examined. Technical assistance as it was originally conceived was designed to close the technical capacity gap between industrial and developing countries by accelerating the transfer of knowledge, skills and expertise, thereby building national capacity. In some cases this has been done but, in many others, technical assistance has had precisely the opposite effect, reining in rather than unleashing national capacity. It has been observed that today, after more than 40 years of technical assistance programmes [in Africa], 90 per cent of the \$12 billion a year spent on technical assistance is still spent on foreign expertise - despite the fact that national experts are now available in many fields.”— Kofi Annan, Secretary-General, United Nations*

**U**N Secretary-General Kofi Annan's frank statement at the General Assembly in 1998 caused many providers

*\*Report of the Secretary-General, “The Causes of Conflict and the Promotion of Durable Peace and Sustainable Development in Africa” (circulated by the IAEA as GOV/INF/1992/2, February 1999).*

of technical assistance to review carefully the form and impact of their programmes. The IAEA was no exception. After more than 40 years of assistance, have we made progress in closing the technology gap? Have we fostered national capacity? And what lessons have we learned to ensure good results for our programme in the future? This article attempts to look at those questions by reviewing the key phases of the IAEA's Technical Cooperation Programme.

### PHASE 1: EARLY GROWTH PERIOD -- BUILDING CAPACITY

Over the past four decades, the IAEA has helped transfer nuclear and related technologies for peaceful uses to countries around the world. In that period, the Agency has planned and delivered projects worth more than US \$800 million in many fields, including energy, safety, agriculture, industry, medicine, water and environmental studies.

The evolution of the Technical Co-operation Programme has been striking. In 1958 few countries boasted nuclear industries. That year the IAEA started technical assistance with the provision of a number of fellowships, expanding to provision of equipment and experts the following year. In those early years the IAEA had technical cooperation programming in just over 40 countries and disbursed annually less than \$2 million. Most projects were aimed at building up scientific and technical capacity and the supporting infrastructure.

Today nuclear industries exist in all regions. The Agency has programmes in nearly 100 countries, disburses approximately \$65 million per year and can use the capacity developed in earlier years as a springboard for further development. The aim now is to make a visible and positive difference in direct support of priority development goals in various countries and regions.

From the outset, the IAEA Technical Cooperation Programme has operated in

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circumstances unique within the UN system. The IAEA grew up with the technology its programmes encompass; its history virtually tracks the nuclear age. As a result, the IAEA has had a major role in the deployment, and in some instances the development, of nuclear science and technology worldwide. For the Technical Cooperation Programme, this has meant an environment that has been both challenging and supportive.

The IAEA has been unique within the UN system for another reason: transfer of technology -- in which the Technical Cooperation Programme plays a major role -- has progressed alongside the Agency's other original goal, that of applying safeguards for ensuring the peaceful uses of nuclear energy. The decision of Member States to maintain balance between support for safeguards activities on the one hand, and technology transfer on the other, has helped ensure relatively predictable funding for the Technical Cooperation Programme, particularly in this early phase. Given that such funding is voluntary and the competition for funds in the international development cooperation arena is strong, this level of predictability made possible cumulative effects that would not have been possible with short-term commitments.

It should also be noted that during the first phase of the Programme, the international attitude towards the peaceful uses of nuclear energy was one of enthusiasm about the possibilities it offered. Many countries were keen on

## NEW STRATEGY FOR IAEA TECHNICAL COOPERATION

The IAEA's new strategy for technical cooperation includes three major elements:

■ **Model Projects:** Model Projects set high standards for project design to ensure they respond to real needs of a country, produce significant economic or social impact through the end user, reflect the distinct advantages of nuclear technology over other approaches and enjoy strong government commitment.

■ **Country Programme Frameworks:** Country Programme Frameworks help focus the IAEA Technical Cooperation Programme with countries on a few priority areas that can lead to significant results.

■ **Thematic/Sectoral Plans:** Thematic Planning exercises identify best practices in a given thematic area, assess nuclear techniques against conventional or up-and-coming techniques, ascertain what pre-conditions are necessary in a country to ensure work in a given thematic area will have impact, and identify other partners working in that thematic area.

establishing the foundation for using the new technology in a variety of areas, both for electrical power and for other applications. At the same time, most countries faced a major constraint: the lack of infrastructure, particularly the lack of human resources trained in this field.

Although most credit for capacity-building, and in some instances, development of a whole nuclear industry belongs to the countries themselves, the Agency has supplied key inputs along the way. These took many forms: expert advice to governments considering establishment of a radiotherapy centre; provision of a key piece of equipment to a laboratory being set up to analyse pollutants in food or the environment; training in nuclear power plant operation, maintenance and safety or in quality control procedures; and fellowships in areas as diverse as medical physics and isotope hydrology.

In some cases, the simple assurance from the Agency that a project was feasible or a given nuclear technique appropriate was enough for a government to proceed on its own.

Key during this first phase was the emphasis on human resources development. The IAEA has long insisted upon self-sufficiency in its Technical Cooperation Programme, and investment in human capital lies at the heart of sustainable development. Between 1958 and 1988, the IAEA trained more than 10,000 fellows. Many of those early fellows are now leaders in their chosen field in their countries. By the same token, many of the countries which were early recipients, are now becoming donors in the nuclear field, and the suppliers of expertise.

Other indicators of the success of this early, capacity-building phase include:

■ the ever-growing number of laboratories producing peer-reviewed publications and

participating in international symposia;

- the increasing number of national and regional experts that are called upon for projects rather than experts from traditional donor countries;
- the ability to produce domestically radioisotopes and radiopharmaceuticals in a large number of countries;
- the qualification or certification of thousands of practitioners in fields such as non-destructive testing and radiological protection.

The results of this early capacity-building phase show that the IAEA did not fall into the “paternalistic” trap referred to by the Secretary General. The Agency did help close the technical capacity gap between industrial and developing countries, and did help build national capacity. Moreover, the emergence of nodes of expertise in all regions allowed the Agency to take its approach to technical cooperation one step further.

## PHASE II: A SHIFT IN FOCUS -- LINKING WITH PARTNERS IN DEVELOPMENT

In the early 1990s, the Agency recognized that its Technical Cooperation Programme had to move beyond development of nuclear infrastructure for its own sake. Whereas this had been both necessary and sought after during the early days of the Programme, thirty years later the environment in which the Agency was providing technical co-operation had changed.

As the decade started, some early recipient Member States boasted sophisticated nuclear

industries; others had well-established research capabilities. At the same time, earlier enthusiasm for the potential of nuclear energy was tempered in many countries by concerns about accidents and waste management.

Fortunately, despite increasing pressure on development budgets worldwide, the desire for balance between funding for the Agency’s different goals persisted. This position was reconfirmed mid-decade by the decisions taken at the Review and Extension Conference of the Treaty on Non-Proliferation of Nuclear Weapons (NPT). If funding for the Programme was becoming more unpredictable, it did not suffer the major cuts felt by many other UN programmes.

This environment led to the recognition of a need for a new strategy for technical co-operation. The Programme had to become less supply-oriented and more demand-driven, linked more closely with the central interests of Member States. After decades of successful capacity-building, the IAEA was ready for the next logical step: to help countries use that capacity to meet their needs for sustainable development.

It should be noted that in this second phase the Agency did not abandon infrastructure development; the Technical Cooperation Programme continued to train people and provide experts and equipment, all of which contributed to capacity-building. What changed was the primary orientation of the Programme, which started

looking more at the problems to be solved with nuclear technology, rather than at the technology itself.

Although the new strategy was formally approved by the Board of Governors only in 1997, its elements began to appear after 1994. (*See box.*)

The core concept of the new approach was embodied in the motto “Partners in Development”. Because the new strategy was meant to guide the transition from a programme of technology-driven assistance to one aimed at problem-solving, new partnerships had to be forged with actual “problem-holders”. These are the end-users of nuclear technologies, the main link in the chain connecting national counterparts with the ultimate beneficiaries, the public at large. For example, in the area of hydrology, the counterpart might be the national research centre, but the end-user would be the national water authority and its teams in the field. The ultimate beneficiary is the consumer of water.

In the second half of the 1990s, a great deal of effort went into helping the nuclear research establishment reach out to mainstream development ministries such as health, agriculture, natural resources and environment, and to financial decision-makers in central planning commissions and ministries of finance. It is usually through these channels that one finds the quickest route to effective end-users -- such as health care professionals and extension specialists -- who can deliver tangible

socio-economic benefits to people and the economy.

During this same period, the Agency also strove to build up a different level of partnership; that is, with development financing and development co-operation organizations. The focus on problem-solving led logically to the need to collaborate with other parties working on the same problems from their own perspectives. In this way the Agency could not only benefit its Member States directly, but also help optimize the investments of other partners.

For example, the Agency used nuclear techniques to help evaluate the nutritional impact of a major Community Nutrition Project in Senegal supported by the World Bank, the World Food Programme and Germany. The Agency's ability to map aquifers using radioisotopes also has assisted many organizations working with governments on water management problems.

A third type of partnership -- key to the Secretary General's vision of restructured international assistance -- was also encouraged during this period as part of the Technical Cooperation Strategy. This is partnership between organizations in Member States or Technical Co-operation among Developing Countries (TCDC). In part thanks to the success of the Agency's work in Phase I, some of the more advanced developing countries have nuclear know-how and establishments that equal those of developed countries in certain areas. The key has been to foster partnerships among such countries, and between



them and the least developed countries. The most successful mechanisms the Agency established to stimulate TCDC have undoubtedly been the Regional Cooperative Agreements established in Asia and the Pacific, Africa, and Latin America (known as RCA, AFRA and ARCAL, respectively).

The results of the Technical Cooperation Strategy and the development of these different levels and types of partnerships have been significant. Because of the focus on problem-solving, the Technical Cooperation Programme has attracted more attention of decision-makers in both Member States and within other international organizations than ever before. Whereas in the past the Agency had been recognized mainly for its technical knowledge and expertise, in the late 1990s it also became increasingly recognized as a valued partner in development. Donors who always felt the moral obligation to pledge resources for technology transfer as a balance to the Agency's other activities came to see that the Technical Cooperation Programme can make a direct contribution to both safety and development goals, and thus to stability and security.

### PHASE III: CONSOLIDATION OF EFFORTS -- TARGETED PROGRAMMING

With the century that saw the birth of nuclear science now behind us, the Agency has once again refined its approach to technology transfer. Many factors are changing the way the IAEA and its Member States look at technical co-operation. These include:

- a shrinking knowledge gap between developed and developing countries;
- globalization of information transfer by electronic means;
- maturation (and in some cases, senescence) of nuclear technology;
- zero nominal growth funding scenarios;
- greater insistence on results-based management by both donor and recipient Member States interested in seeing tangible benefits from their investments; and,
- increasing demands for transparency and accountability.

What these factors imply is that the Agency needs to spend its limited Technical Cooperation funding on an increasingly focused range of

*Photo: In Africa, crop production is being increased through IAEA-supported projects.*



projects, keeping in mind what others can provide. On the basis of what we have learned and what we have built in the last 40 years, the next logical phase for Technical Cooperation is “targeted programming”. The questions that need to be asked in this context are:

- How can we best establish and adhere to strict priorities for the programme?
- How has the Agency’s role in technology transfer changed? Recent discussions within the Secretariat and with Member States are starting to provide some of the answers.

**Establishing Priorities.** It is commonplace to say that Member States’ priorities are the Agency’s priorities. Certainly the IAEA would not want to field a programme of technical cooperation that is out of step with either the wishes of Member States or its own mandate. Clearly the key principles for setting priorities must address at least the following: the areas of core competence within the Agency’s statutory mandate; specific topics designated by

the IAEA Board of Governors or General Conference; and the most pressing needs of Member States for sustainable development solutions.

Our core competencies are easy to identify: the Agency is the first place Member States would turn for advice on nuclear safety standards, radiation protection or the major issues involved with establishing a nuclear power industry. But outside these core competencies, determining Member States’ needs is not always a straightforward matter. It is easy to provoke apparent demand in a particular field by implying that funding is available for it. A more reliable approach to priority-setting would include using the results from at least three types of analysis.

First, where are governments putting their own or borrowed funds? By analyzing governments’ own spending patterns, the Agency can get a good sense of where major interests lie. By linking Technical Cooperation projects to existing programmes of national investment in sustainable development, the Agency can leverage its relatively modest resources and maintain government interest

in collaborating with it. Exploring these patterns and potential for linkages is one of the new tasks of the Country Programme Framework process.

Second, when it comes to priority-setting, there is no substitute for experience. Forty years of technical cooperation projects provide a pragmatic guide to what works and what does not, and which themes -- such as hydrology and the sterile insect technique -- make the largest contribution to achieving sustainable development goals. Technical cooperation projects must deliver real, as opposed to presumed, impact. Evidence-based priority-setting is a key means of targeting programming by finding good opportunities and avoiding dead-ends, and it is fully in line with results-based management principles.

Third, where evidence based on experience is not available, the priority-setting process should be informed by the results of careful feasibility and cost-effectiveness analyses under local conditions. It is not enough to say that significant impact might be achieved. Analyses should be carried to the point where there is reasonable certainty that tangible impact can and will happen, after thorough study of any attendant risks and assumptions. This includes comparative analysis of non-nuclear alternatives and a clear demonstration of the advantages of nuclear techniques.

These principles apply with equal validity to activities supported by the IAEA’s regular budget. The evidence accumulated over the years by

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*Photo: In Latin America, specialists are applying isotopes in hydrological investigations.*

the Technical Cooperation Programme is a valuable tool for establishing empirically -- and in concrete terms -- where the Agency should encourage its resources to flow. Conversely, it is the Agency's responsibility to reduce its emphasis on those themes that have proven less successful in generating projects with significant impact. Synergy is achieved by establishing a set of priorities common to both the regular budget activities and the Technical Cooperation Programme. Both need to be linked to government investments in sustainable development; both should be judged by the concrete results achieved in Member States.

**A New Role for the IAEA in Technology Transfer.** Whereas 40 years ago the Agency was one of the few organizations with the expertise and wherewithal to transfer nuclear technology, nodes of expertise now exist in every region.

The IAEA has long functioned as an important technical resource to its counterparts. This role should continue, but now in many instances, it is time for the Agency to step back and play more of a facilitating, or monitoring, role. For this phase of technical co-operation, it is important that the Agency carefully identify and target the type of programming that only the IAEA can do.

Part of the reason for the need to change roles stems from good results of earlier phases. Now success in building capacity and in fostering partnerships with counterparts in different regions can be taken one step further. Countries need not

rely on isolated nuclear centres, each constrained by its own limitations and few equipped to tackle large problems alone. We are on the threshold of having networks of Regional Resource Units (RRUs) that pool their abilities for effective problem-solving. As RRUs emerge and grow stronger, opportunities will arise for taking TCDC to a new level.

The Agency can help realize this promise by extending the Partner in Development concept to help create the necessary regional management skills base. The Agency should expand its historical role of supporting technical development to one of strengthening the management of nuclear technology for development.

The Agency's new role should also be a more proactive one. It should be prepared -- together with its partners -- to adopt a more aggressive marketing strategy, one that is effective in identifying and developing "markets" for premier nuclear technology among mainstream development ministries. When a problem being addressed is crucial to removing a significant constraint on development, the Agency's technology package is indispensable for maximizing cost-benefit, and the Agency's role is both clear and clearly accepted, we should not hesitate to try and create government awareness of the possibilities that nuclear technologies can offer.

Finally, the Agency should be proactive in using new technology, particularly information and communication technology.

Using this technology as a way not only to change the way we do business, but also the nature of our business, may well take us in directions that are currently hard to predict.

## **BUILDING ON EXPERIENCE**

In looking back at more than 40 years of the Agency's technical co-operation, it is evident that we have met the UN Secretary-General's aspirations for programming that promotes development in a sustainable way. Our experience shows that it is possible not only to help build up national capacity, but also to encourage use of that new capacity to solve key development problems at home and to share the expertise acquired with other countries.

The fact that the IAEA has been able to do this in a high-technology field such as nuclear science should give development planners the confidence that it can be done in other fields as well. What is important for the IAEA is to continue boldly down the path upon which it has already embarked. The key to success will be understanding the environment in which we work, and accepting the changes in approach that it will require. We are convinced that by proceeding along the path being taken -- and perhaps only in this way -- the IAEA can create a stronger global constituency for more nuclear applications that are significantly contributing to the world's safe and sustainable development. When this comes about, we will be on our way to realizing the true goals of the NPT regime underpinning the world's stability and security. □