

News from ICTP 114 - Features - KR Sreenivasan



In a candid and broad-ranging discussion, ICTP Director K.R. Sreenivasan assesses his first two-and-a-half years in office and examines what lies ahead.

Mid-Term Report



K.R. Sreenivasan

You have recently crossed the midway point in your first term. What are your thoughts?
I am proud of what ICTP has accomplished, and feel good about the Centre and its staff, and also about coming here.

What are you most upbeat about?

Forty years ago, industrialised countries did not seriously consider the importance of science in developing countries. As a pioneer, ICTP has successfully drawn attention to this important consideration. Let me give a few examples of how participants in the Centre's activities feel about their experience. At the inaugural meeting of the World Year of Physics in UNESCO headquarters in Paris last January, a distinguished French professor, whom I had not met, stood up at the end of my talk to praise ICTP's work in Africa. At a meeting I recently attended in South Africa, when someone asked, "How many people have been to ICTP?" many hands went up. I can cite other examples of public expressions of thanks and recognition, and there are endless examples of the important difference which ICTP has made. Obviously,

credit for this goes to the wider ICTP community--past and present. Our efforts on behalf of individual scientists have proven effective and we will not waver in that commitment. By the way, our focus has been on individuals chiefly because of the dearth of strong and nurturing institutions in the developing world. A large number of scientists need us, look up to us and benefit from us. If we were to disappear, people from around the world would miss us. Our scientific and administrative staff, consultants, and friends have made the Centre's guiding principles of quality and accountability their own. The scientific community--notably, the Italian scientific community and that in Trieste--have been continually supportive. Italy's ministries appreciate us, as do our two parent institutions, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Atomic Energy Agency (IAEA). Many governmental and international bodies across the world respect--and increasingly emulate--our work. All of this is exceedingly positive.

You mentioned quality and accountability. Can you elaborate?

There is a huge difference between doing things and doing them well, and the latter must be our underpinning ideal. Without quality, we cannot continually build on the past. ICTP must remain accountable to its mission. Accountability adds to the sense of self-worth instead of demeaning or diminishing a person's status. One cannot repeat like a mantra that we care about developing countries without making conscientious and time-consuming efforts to understand their needs and assisting them in meeting such needs.

Are you concerned about any aspects of ICTP?

In broad terms, ICTP's mandate is to speak out for science in developing countries and to raise its level. The task is immense. I am concerned that, 40 years on, we have just scratched the surface of the issues we face. Our support for individual scientists has not been institutionalised well enough to build self-sustaining scientific programmes of world-class stature. Without generating such institutional changes in developing countries, the problems will not diminish and the Centre will be constantly putting out little fires. Even when it comes to supporting individual scientists, we should do better, both when they come to ICTP and when they stay home.

Several countries that have benefitted from ICTP in the past can help us financially now. This has not yet happened though everyone appreciates the value and impact of the Centre's work. In the meantime, I am grateful for Italy for continuing to be our major benefactor. Internally as well, I would like to see the mission of ICTP institutionalised better. The director's role is much too critical in determining the Centre's directions. Our goals of excellence, diversity and service must advance without revolving around the director; only then will the Centre be able to innovate without pain. On daily matters, I would like to see a greater responsiveness to change on the part of the ICTP staff (myself included). This applies from the smallest to the most important task. Everyone understands what I am saying but to paraphrase Bismarck: Change is welcomed as long as one's personal domain is exempt.

An expanded view of the world may present challenges too large for ICTP to address. Should the Centre do whatever is possible without aiming so high?

It will be unforgivable if the Centre thinks that the problem is too daunting and shirks from it. Few institutions in the world enjoy our scientific credibility and sense of purpose. I realise that problems are tackled one at a time. But we must aim towards long-term effectiveness instead of short-term deeds. If we become nothing more than a research institution--even a great one--while ignoring our larger responsibilities, we will lose our soul. If we fail to remain a place where excellence is pursued relentlessly through example, we will lose our credibility. Only by placing challenging and difficult goals in front of us can we live up to our mission.

How should the Centre pursue its mission?

ICTP must continually aspire to improve its scientific stature. In addition, ICTP has a responsibility to help scientists in developing countries build self-sustaining groups and centres of excellence so that the 'ICTP effect' can multiply. We must identify good people and help them develop and sustain their activities; we must avoid disjointed efforts. Conversely, I

have been urging our visiting scientists to think more of their own scientific dreams holistically and of how, through ICTP acting as the seed, those goals can be realised. Some have responded positively and I hope that many more will. The world has changed more in the past few years than at any time since World War II. This calls for changes in ICTP's operations. For instance, some developing countries have done quite well in science. We must make common cause with them as part of a larger effort to advance our mutual goals. Our recent agreements with like-minded institutions in Brazil, China and India have expanded their regional roles--and I hope to broaden such agreements even more in the future.

What role do you see for the developed countries in advancing ICTP's long-range goals?
Industrialised countries must be fully engaged in ICTP. They, and other entities, such as the European Union and G8 group of industrialised countries, should regard ICTP as a vehicle and source of knowledge for promoting their broad goals for scientific development. I would like to see developed countries give ICTP both moral and material support. I am making special efforts to get the EU and G8 countries interested in our programmes. All good scientists from every part of the world, including the developed world, should feel that they are part of ICTP's mission. In our line of work, some give, some receive, and some do both, but all must feel welcome at our Centre.

What arguments do you use to solicit broad support for ICTP?
Among developed countries, I emphasise that their support should not be regarded as magnanimity or moral responsibility, although it is indeed both. The greater truth is that they cannot afford to leave poorer countries too far behind for reasons of self-interest alone. We live in a time when the finiteness of the Earth's resources is becoming abundantly clear, just as it is becoming clear that we will survive together or not at all. To avoid catastrophe, those of us who have more should share with those who have less. This does not mean that rich countries should assume full responsibility for poorer countries--that would be a mistake--but they should do everything possible for poor countries to more effectively shoulder their responsibility. Since only serious people can bring about serious changes, and since ICTP is connected to such people worldwide, we are a great resource that should be utilised more fully. As regards emerging countries with improved scientific capabilities, I ask them to recall their own struggles not so long ago, and to now support the Centre just for that reason. For scientists from poorer countries, I remind them that ICTP is a place whose resources they should use effectively to build their own long-term scientific capabilities.

How do the world's political difficulties today affect ICTP?
ICTP is politically neutral--and should remain so. Yet we are in the midst of it all. For instance, obtaining visas for scientists from some countries has become increasingly difficult--in large part because of the legitimate concerns that Italy has for its security. I am fully aware of the risks and of the responsibilities of the Centre. This is a difficult time to maintain the mobility of people, knowledge and ideas. Yet, if some scientists cannot come to ICTP because they have been unable to obtain a visa, our purpose is diminished. It is precisely scientists coming from the most troubled parts of the world that need us most. This is the irony of our times.

What do you say to those who claim that scientists from some countries who receive training at ICTP could abuse it?
It is increasingly acceptable to think that some countries misuse their scientific knowledge and must therefore be shut out. ICTP stands for the use of science to promote both economic development and cultural exchange, and we therefore abhor its abuse. We build scientific capacity with the expectation that it will feed into proficient public policies benefitting all of society: we all suffer even if a few countries make bad decisions. I should also note that ICTP is not in the business of technology transfer. Claims of potential abuse can be made against any institution, and those with high profiles like ours are more vulnerable to such accusations. It is a risk we must take, and history is firmly on our side. That said, we must acknowledge that a tyrant can indeed get hold of a potentially destructive technology and abuse it. Part of

the solution is that, even as we advocate science, we must simultaneously promote ethical values, civil society and respect for human rights and individual dignity.

What role should ICTP play in the Trieste system?

Because of ICTP, international scientific cooperation is now a priority among Trieste's scientific institutions. This makes Trieste unique. ICTP should continue to engage local institutions in promoting this goal. It is also important to remember that ICTP is an international institution with its own obligations and functions, and that our primary task is to discharge them well. Yet, since the Centre is located in Italy and receives most of its funding from the Italian government, we have a special obligation to Italy's institutions and scientists, especially those in Trieste; ICTP must thus balance its multifaceted tasks with care and thought. I take this missive seriously.

The best way to increase cooperation among institutions is to develop common research and educational programmes. We have just launched a joint master's programme in physics with the University of Trieste and a joint Ph.D. programme in environmental fluid mechanics with the University of Trieste, the National Institute of Oceanography and Experimental Geophysics (OGS) and other institutions in Trieste; we have strong collaboration with our next-door neighbour, the International School for Advanced Studies (SISSA), in condensed matter, high energy physics and mathematics; and long-standing collaboration with *Elettra* Synchrotron Light Laboratory and Area Science Park. We recently signed a joint agreement with the International Centre for Genetic Engineering and Biotechnology (ICGEB) laying the groundwork for joint programmes with the United Nations University in Tokyo.

Such initiatives will undoubtedly expand in the future. However, progress requires constant dialogue about the goals within each of our institutions, among institutions, and between Trieste and the Italian ministries. This is already happening as evidenced by recent coordination efforts between Trieste's scientific institutions and Rome. Though last year's campaign to bring Expo2008 to Trieste did not succeed, it drew Trieste's scientific institutions closer together and made the city as a whole more aware of this enormous resource.

What measures do you anticipate taking in the remainder of your term?

I expect the Centre's science to grow through a few new appointments, especially in areas related to sustainable development, biology and nanoscience, though not overwhelmingly. Our Centre cannot ignore large-scale scientific enterprises such as the Large Hadron Collider (LHC) and ITER. I would like to see the work of our Centre better known within Trieste, Italy, Europe, and North America. A constant refrain about ICTP is that it is more famous in Rio than in Rome. We have acted with some success to change this perception. Similarly, people within UNESCO and the UN system know ICTP less than our work deserves. This has been an eye-opener to me. We have taken a few steps to correct it, but there is a long way to go. There is a strong need to assist in the creation of a few world-class centres, or networks of centres, in Africa and the Middle East. Such centres can have a tremendous impact by example. We have possibilities to reach this goal in sub-Saharan Africa through the optics and mathematics networks in which ICTP has been involved for many years, and a new network on nanoscience is now being fostered within Africa in collaboration with South Africa. We are exploring possibilities in the Middle East as well.

Our obligation to scientists from developing countries is of three varieties. When they are young, they need to come here to gain exposure to the best science and the best people in their fields. I believe that a large portion of our visitors will continue to be young and in need of ICTP's nurturing. This is something we already do well. When scientists reach the mid-stage of their careers, they must focus on strengthening and advancing their own activities in their own countries. I would place a premium on ICTP's efforts to help deserving scientists achieve this goal because models of success inspire younger generations like nothing else. A fraction of this advanced group will be successful and we should draw them into ICTP's activities, encouraging them to participate as lecturers in our activities and to serve as ambassadors of good will for ICTP in their home countries. Our threshold of excellence must increase as we go from one stage to the next, and all our programmes, particularly our Associateship Programme, should reflect this.

There are other new measures we are exploring as well. First, we are currently discussing new diploma course programmes in earth system physics, applied mathematics and general physics without specialisation. Second, our scientific programmes need some changes in so far as they should all have some special purpose. A programme, for example, should serve the needs of students and other researchers who are considering entering a new area of study; or should focus on an issue that may be at the cutting-edge of a field, calling attention to aspects before they become fashionable; or should be integrated with issues of a larger scope; or be of deep concern to developing countries. We are doing well in some regards but there is big room for improvement. Third, I would like to see less balkanisation than exists now within ICTP--understandably reflecting our somewhat haphazard growth. Finally, some of these new measures require additional resources. I am working on this but not with the devoted attention that fund-raising requires. We have to create mechanisms within the Centre for carrying out this activity successfully.

What strengths do you personally bring to the Centre towards fulfilling these goals?

I think in terms of long-term goals rather than short-term gains. As a result, I am often content if some of my work yields fruit in years hence. Only by making large numbers of good people feel that they are part of the 'ICTP experiment' will the Centre be able to meet its future challenges. One of my primary tasks is to enhance this sense of belonging. I think that more people than ever before feel that they belong to the Centre. I hope it is clear that I care for the Centre and its community in its widest sense. This commitment means saying 'no' to some things and some people at times but I do it without favouritism or factionalism. I detest arbitrary decisions and do not act out of personal prejudices or ignore advice, and would like to create conditions by which people have faith in the fairness of the system. I don't lose track of big things or neglect details. I work hard, and so forth. But I do know that better things are possible and I am aware of my many limitations.

What legacy would you like to leave?

One is free only if one is not burdened by such thoughts. The Centre will be successful--with or without me--if it understands its role intuitively and works diligently to fulfil it. Nevertheless, I am glad to have this opportunity to explain a few of my thoughts and concerns. Waiting until the last day of my tenure to dwell on the past while voicing concern for the future would have been futile. Retiring directors, like retiring generals, ought to fade from the scene, and I intend to do just that.

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