



[pact@iaea.org](mailto:pact@iaea.org)



# PACT

**BUILDING  
PARTNERSHIPS  
TO STOP THE  
GLOBAL CANCER  
EPIDEMIC**

Grant Raising Prospectus



**IAEA**

Programme of  
Action for  
Cancer  
Therapy

**PACT**

*Atoms for Peace: The First Half Century  
1957-2007*



## WHAT IS PACT?

*An oncologist explains the diagnosis — cervical cancer — to a distraught patient in Nicaragua.*

The International Atomic Energy Agency (IAEA) has a long history of supporting successful cancer diagnosis and treatment programmes in the developing world using radiation medicine as part of its programme in health. Radiation medicine techniques are indispensable in cancer care, where radiotherapy plays a fundamental role. Radiotherapy was one of the earliest applications of radiation, and remains an important and cost-effective treatment for cancer, often used in conjunction with diagnostic radiology and nuclear medicine procedures for tumour localization. The assistance provided by the IAEA through its technical cooperation programme has enabled many countries to establish safe and effective radiotherapy capabilities and to provide higher quality treatment to at least a portion of their cancer patients. But with a cancer epidemic looming in developing countries, the existing infrastructure and resources are far from sufficient to respond to the growing demand. There is need for urgent action.

The Programme of Action for Cancer Therapy (PACT) was created within the IAEA in 2004 to build upon the Agency's experience in radiation medicine and technology, and enable developing countries to introduce, expand or improve their cancer care capacity and services in a sustainable manner by integrating radiotherapy into a comprehensive cancer control programme that maximizes its therapeutic effectiveness and impact. Such a programme integrates and aligns cancer prevention, surveillance, screening and early detection, treatment

and palliative care activities and investments, and is set up based on the *Guidelines* of the World Health Organization (WHO). It also addresses other challenges such as infrastructure gaps and, through partnerships, builds capacity and long term support for continuous education and training of cancer care professionals, as well as for community-based civil society action to combat cancer.

To achieve its goal, PACT is being implemented in overlapping stages which raise awareness about cancer, assess cancer system needs, develop demonstration projects, and attract donors to establish effective new funding mechanisms beyond those currently available from the IAEA. The IAEA intends to utilize its significant role in cancer diagnosis and therapy to work with WHO and other leading organizations involved in cancer control to develop joint programmes and to raise funds to increase investments for the whole spectrum of cancer care in low and middle-income countries. PACT

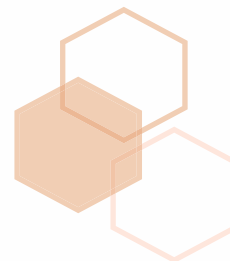
## The Accelerating Cancer Crisis

By **2020**, cancer could kill

### Trends

The biggest rates of increase are in developing and newly industrialized countries.

The relative increase is smallest in some Western countries where populations are rejecting tobacco and adopting healthier lifestyles.



Map is reprinted from the World Health Organization publication *Global Action Against Cancer Now*, World Health Organization, 2005.

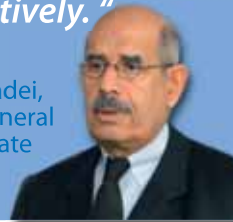
aims at encouraging the formation of concrete alliances with key multisector organizations involved in cancer control, each maintaining its leadership in the cancer care components for which it has a mandate and experience. Such alliances and innovative public-private partnerships are essential in placing cancer on the global health agenda and comprehensively addressing cancer needs in the developing world over the next 10 to 20 years. The IAEA will continue to invest in PACT with personnel and resources as one of its key priorities.

## THE LOOMING CANCER PROBLEM

Cancer is a leading cause of death globally. The WHO estimates that 7.6 million people died of cancer in 2005 and 84 million people will die in the next 10 years if action is not taken. More than 70% of all cancer deaths will occur in low

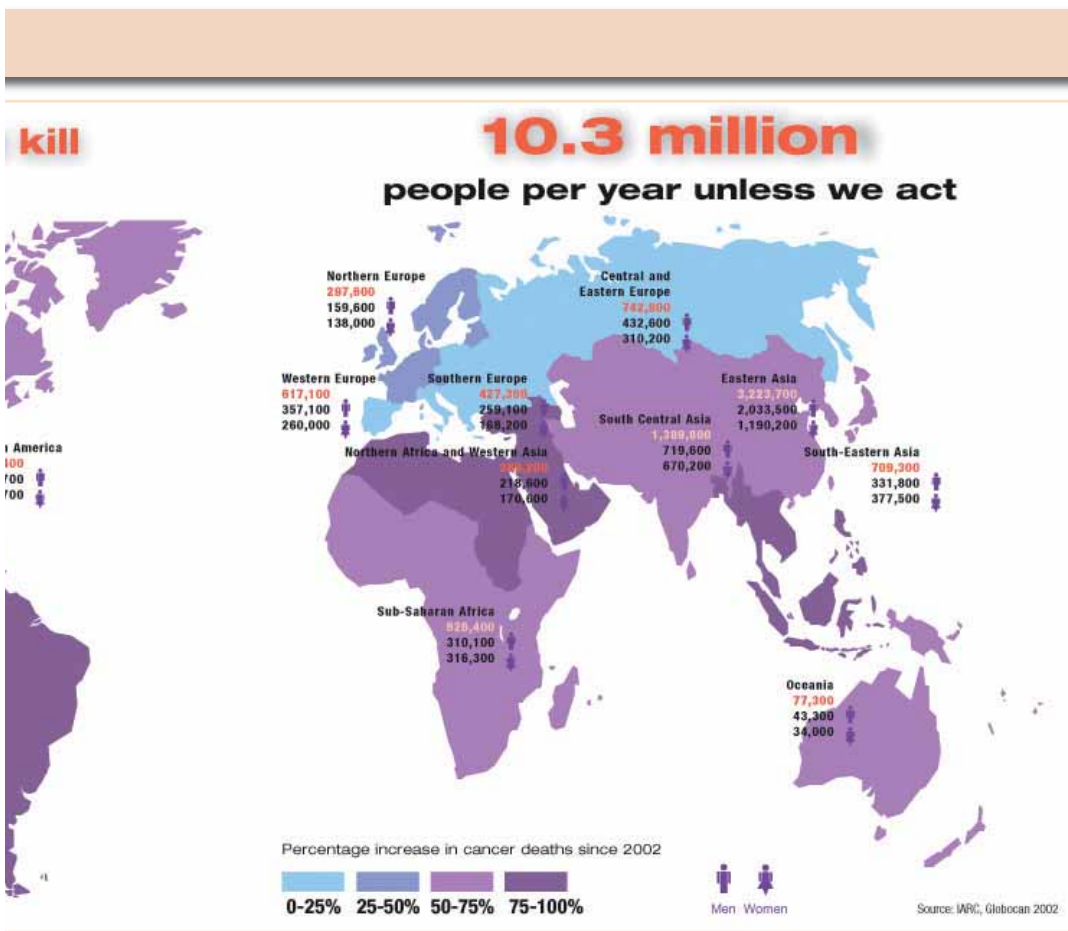
*“Cancer is a growing crisis all across the developing world. We can save thousands of lives if we put together the tools, the knowledge and the political will to fight cancer effectively.”*

Mohamed ElBaradei,  
IAEA Director General  
and Nobel Laureate



D. Calma / IAEA

and middle income countries, where resources available for prevention, diagnosis and treatment of cancer are limited or non-existent.





D. Kinley / IAEA

*With a population of 20 million, Ghana can expect up to 20 000 new cases of cancer each year. The Korle Bu hospital — built with help from the IAEA Technical Cooperation programme — is the country's biggest treatment centre, offering radiotherapy, surgery and chemotherapy services. However, the current capacity hardly exceeds 1000 patients per year, far below demand.*

There is much scope for action. Over one-third of all cancers can be prevented and a further one-third, amongst the most common ones — including cervical, breast, head and neck, and colorectal cancers — are curable if detected early. For the remaining third — patients with advanced cancer — quality of life can be improved substantially by palliative care, which is also important for all other cancer patients.

Yet the potential to prevent, cure and care for cancer has not been fully realized in many countries. Population-based prevention measures are often lacking, and early detection and screening programmes may not be in place. Frequently, diagnosis, treatment and palliative care services are insufficient because health systems are already overburdened by infectious diseases such as HIV/AIDS, tuberculosis and malaria. About 70% of all cancers in low and middle income countries are diagnosed only after they are too advanced to be cured.

Although many medium-income countries assign high priority in their national health strategies to chronic diseases, including cancer, the donor community and most bilateral development agencies do not, as yet, consider cancer control a high priority. If cancer is not given higher priority, health care systems in low and middle income countries will encounter even further problems as the number of cancer cases increase. Countries will see more and more people dying prematurely and needlessly from cancer, with devastating social and economic consequences for households, communities and countries alike.

Cancer could become a major impediment to socioeconomic development in low income and economically emerging nations.

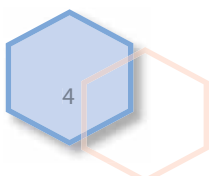
## THE NEED TO BUILD PARTNERSHIPS

Most people know someone who has suffered from cancer, and, according to WHO's predictions, millions will die unnecessarily unless a concerted effort is made to coordinate actions and mobilize resources to bring comprehensive and sustainable cancer control programmes to the developing world. For this to happen everyone agrees that cancer needs first to be placed on the global health agenda, alongside HIV/AIDS, malaria and tuberculosis.

Many organizations are working today on cancer control in the developing world. But all too often, they are working alone, with few resources, and little support. Most of these organizations, including WHO, now plan to work closely together, each excelling in its speciality, to bring cancer knowledge, prevention and sustainable control capabilities to health care systems throughout the developing world.

Building sustainable capacity in cancer surveillance, prevention, early detection, treatment, palliation, rehabilitation and advocacy in the developing world requires building public-private partnerships along the lines of other successful global programmes. These public-private partnerships will work together to assess the needs, help define the relevant national plans and programmes for cancer prevention, treatment and control and raise the much needed funding to implement the plans in all regions of the developing world.

The 58<sup>th</sup> World Health Assembly recognized the need for a comprehensive and integrated approach to fighting cancer. Its May 2005 resolution on Cancer Prevention and Control, *inter alia*, gave recognition to the work of the IAEA and welcomed its *Programme of Action for Cancer Therapy*. It also requested the WHO Director General to explore the feasibility of developing a joint programme between WHO and IAEA for cancer prevention, control,



treatment and research. In IAEA General Conference resolutions on PACT in September 2005 and 2006, the IAEA Director General was also encouraged to do the same as well as explore the best means to partner with WHO and other organizations in the implementation of PACT.

PACT was launched as an IAEA initiative but its vision is to build a global alliance and fund for cancer control. Such a global alliance is only achievable if the initial partnerships around cancer prevention and control are effective and successful in a number of demonstration projects.

## RADIATION MEDICINE AND THE ROLE OF THE IAEA

Radiation medicine involves the use of radiation for the diagnosis (*radiology and nuclear medicine*) or the treatment (*radiotherapy*) of diseases. For cancer patients in particular, scientific studies show that radiotherapy is a most valuable treatment. In high-income countries, radiotherapy is given to well over 50% of all cancer patients. In low and middle income countries, the need for radiotherapy is even greater, because patients are often too weak to undergo chemotherapy or have cancers too



P. Pavlicek / IAEA

advanced for surgery. Radiotherapy, therefore, is often the only option for either curing the cancer or relieving pain in incurable cases.

Transfer of radiation medicine technology and skills, including the diagnosis and treatment of cancer, to low and middle income countries is an area of activity in which the IAEA has excelled over the past 30 years through its **Human Health** programme, which focuses on prevention, diagnosis and treatment of diseases, especially cancer using radiation and nuclear techniques. This emanates from the IAEA's unique mandate — to **“accelerate and enlarge the contribution of atomic energy to peace, health, and prosperity throughout the world”**. The IAEA has the necessary technical expertise and experience to respond to the need for safe, effective and sustainable radiotherapy services around the world.

Over the last three decades, the IAEA has provided nearly US \$160 million of cancer-related assistance to low and middle income countries through its technical cooperation programme. This experience has demonstrated that radiotherapy is a mature technology that can be transferred safely and successfully to these nations.

These achievements serve as an anchor for extending the initial success in transferring radiotherapy technology to developing countries, and for encouraging broader capacity building in cancer prevention and control by Member States, partner organizations and international donors. Expanding radiotherapy access will not, however, achieve maximum clinical or public health value without complementary capacity building in such areas of cancer control as early detection or palliation. To achieve maximum impact, the transfer of radiotherapy technology must therefore be a part of a broader cancer control strategy that includes prevention, early detection, earlier diagnosis of the common cancers and access to treatment and palliative care.

*Five years ago, a cancerous lung tumour left Mr. Wisdom Nutakor of Accra, Ghana paralyzed from the waist down. Today, thanks to treatment at the Korle Bu Teaching Hospital, he is walking again.*

# PACT IMPLEMENTATION AND FUNDRAISING STRATEGIES

PACT's primary goal is to enable low and middle income countries to introduce or expand existing infrastructure and capacity in radiotherapy, in a sustainable manner; and to improve or accelerate widespread access to effective radiotherapy services as an essential part of multidisciplinary cancer care. This goal cannot be achieved without mobilizing significant new resources. Nor can it be realized without partnership with other key organizations or in isolation from planning for and investments in other components that comprise a comprehensive and integrated national cancer control system (see diagram on page 11).

Effective treatment requires a *broad multidisciplinary and comprehensive approach* that includes cancer prevention, early detection, diagnosis and palliation. The lack of investment in early detection and diagnosis results in patients with curable cancers seeking treatment so late in the course of their illness that radiotherapy can only palliate and provide a humane death. Patients with curable breast, cervical, oral and other prevalent cancers are dying unnecessarily because past investment has not always addressed cancer comprehensively.

The early detection of cancer is crucial for curative radiotherapy. For low and middle income countries, this means embedding radiotherapy expansion within a plan to advance multidisciplinary cancer control. Through collaboration with stakeholders in cancer prevention and control, these countries will be able to build effective programmes, in line with WHO guidelines, that prevent avoidable cancers, reduce and treat cancer in its later stages, and save lives and improve quality of life for cancer patients.

In order to contribute to this process, PACT seeks to mobilize philanthropic funds, product

donations and, where applicable, volunteers from the private sector to support its country programmes on cancer. Donations will be sought from individuals, companies or foundations, ranging from major foundations to corporate and family foundations.

PACT is also building partnerships worldwide with leading cancer organizations, governmental and non-governmental, as well as the private sector. PACT has already entered into a number of bilateral cooperation agreements but is seeking larger multilateral partnerships. Each organization is making a significant contribution in its areas of expertise or interest within the broader cancer control framework. Outreach to other international organizations continues.

Public-private partnerships will enable the collaborating organizations to use their individual competencies and resources to the greatest effect. These partnerships will be based on agreements among all participants to fight cancer in all its forms in the developing world, pooling their experience and resources accordingly.

In advancing these objectives, PACT has adopted a three stage approach:

- The first stage constitutes a comprehensive cancer control needs assessment (*imPACT — integrated missions of PACT*) for each of the Member States selected.
- The second stage is the phased implementation of measures to address cancer comprehensively in each of the six Member States at *Model Demonstration Sites*. These will form the basis for increasing donations from development banks, foundations and other sources.
- The third stage will focus on regional capacity building through the development of *Regional Cancer Training Networks*.

Through this approach to date, PACT has secured over \$2 million of in-kind donations and cash support to implement the first phase of establishing basic operations and country needs assessments. PACT has also secured a donation of up to three radiotherapy machines from a leading manufacturer.

## STAGE 1 — imPACT

The main purpose of an *imPACT* review is to assess, through a joint international and inter-agency effort, the national burden posed by cancer and the status of policies, strategies, plans, programmes, and infrastructure related to all aspects of cancer prevention and control. The objective of this joint needs assessment is to assist Member States, the IAEA, its partners and potential donors to identify assistance packages designed to respond to these needs in an effective and efficient manner.

All *imPACT* reviews are performed in close cooperation with the requesting government and are planned in consultation with WHO and conducted jointly with PACT's partner organizations. Full or preliminary *imPACT* reviews have been conducted to date in: Albania, Georgia, Ghana, Nicaragua, Peru, Sri Lanka, Tanzania, Vietnam and Yemen. Such reviews require extensive desk studies and several field missions to reach the joint inter-agency final report and recommendations. The reports of full *imPACT* missions have already proved to be useful tools for developing *national cancer control plans* in the countries visited. As a result, requests for *imPACT* reviews have been received by the PACT Programme Office from other countries in all regions.

## STAGE 2 — MODEL DEMONSTRATION SITES

*Model Demonstration Sites* are designed to demonstrate to potential donors the synergies that international agencies can achieve by successfully working together in the field to advance comprehensive, multidisciplinary cancer capacity building in low and middle income nations. *Model Demonstration Sites* will assist these countries to develop and implement National Cancer Control Programmes and Action Plans. Successful demonstration sites will:

- illustrate the feasibility and value of an interagency cancer control partnership, methodology, and assessment regime;
- secure modest, incremental resources to implement models and to demonstrate value for initial investments; and
- offer an interim focus for PACT programmatic activity and help raise donor and public awareness until regional/global initiatives can be funded with larger donations.

To date six *Model Demonstration Sites* have been selected: Albania, Nicaragua, Sri Lanka, Tanzania, Viet Nam and Yemen.



P. Pavlicek/IAEA

The World Health Organization has called cancer a 'global epidemic' — estimating that 84 million people will die in the next 10 years unless urgent action is taken.

## STAGE 3 — REGIONAL CANCER TRAINING NETWORKS

As the *Model Demonstration Sites* develop and achieve observable results, significant attention will be paid to training and the need for establishing regional cancer training networks. Cancer training must be comprehensive and multidisciplinary, covering all health care professionals needed for an effective and sustainable cancer control programme.

Experience shows that the critical bottleneck to advancing cancer care capacity, whether in treatment or prevention, is training of staff in all areas of cancer control. For instance, as far as cancer treatment is concerned, lack of adequate human resources leads to suboptimal utilization of existing scarce radiotherapy facilities in many developing countries, and constrains their ability to expand services for the rapidly growing number of cancer patients.

This problem is particularly pronounced in low and middle income countries, from which many health care professionals relocate to high income countries. In order to achieve sustainable cancer care capacity in these countries, there must be a dramatic increase in professionals trained locally or regionally in cancer care, who remain within their home countries. Furthermore, facilities and tools

are required for the education and training of new radiotherapy and cancer public health professionals (at their home institutions, as much as possible) as well as for the retention of the existing staff by continuing professional development. PACT is therefore proposing to accelerate multidisciplinary cancer control training during Stage 3 to ensure investments in programmes, technology and facilities will have maximal public health impact and be synergistic.

PACT's strategy is to create regional cancer training networks, whereby countries in any given region that are currently more advanced in terms of cancer control capacity and share similar conditions, can serve as mentors to other countries in the region. Relying on modern information technology tools and drawing on the positive experience in several developing countries where, despite low resources, very successful training systems have been established, each *Regional Cancer Training Network* will utilize both a *Cancer Control International Mentorship Network* and a *Virtual Cancer Control University*.

### CANCER CONTROL INTERNATIONAL MENTORSHIP NETWORK

A selection of leading international cancer control and care institutions (mentor institutions) in high and middle income countries will be partnered with a cancer control institution in a low income target region. Using a model of institutional exchange in multidisciplinary training and research, and combining remote communications and in-person visits, the mentor institutions will provide ongoing support to institutions within the target region.

### THE VIRTUAL CANCER CONTROL UNIVERSITY

The Virtual Cancer Control University will provide Internet access to the latest training techniques in radiotherapy and allow information exchange and video-conferencing on all aspects of multidisciplinary cancer control. Such training will allow large numbers of

*Radiotherapy can potentially cure 50 per cent of cancers.*



R. Quevenco / IAEA

established experts to teach without the need to travel long distances. On-line mentoring and supervision by international experts will support local teachers and help local practising cancer professionals and students gain the most from continuing professional education and training opportunities, respectively. Local certification, either within the country or the region, will be required to provide recognized qualifications for all trainees.

One of PACT's short term objective is to develop a proposal for a Regional Cancer Training Network in one region in 2007 and to submit this for funding consideration.

## NEXT 3–5 YEARS

PACT's initial objectives over the next 3–5 years are to:

- Establish working relations with other global leadership organizations in cancer prevention and control.
- Conduct interagency country needs assessments (*imPACT* reviews).
- Design, execute and evaluate *Model Demonstration Sites* in multidisciplinary cancer control in up to six selected countries around the world.
- Assist countries in all regions to develop customized frameworks and comprehensive proposals for *Regional Cancer Training Networks* within each region.
- Through evaluations and feedback from the *Model Demonstration Sites* and regional efforts, contribute to the development of a global strategy to address cancer across the developing world through national and regional cancer capacity building.
- In cooperation with WHO and interested industry partners, promote the development of improved imaging and radiotherapy technologies, or the modification of existing ones, to make all

such techniques more accessible, affordable and suitable for low resource developing countries. PACT will further encourage manufacturers to license a number of developing countries to manufacture these new or modified designs at lower cost to both the manufacturer and the end consumer in low income nations.

To achieve these objectives, PACT will need augmented funding over the next 3–5 years. Additional funding provided by donors will build upon the annual \$15 million IAEA contribution to fighting cancer in low and middle income countries.

This funding will be used in target countries to allow PACT and its interagency partners to:

- Strengthen collaboration and coordination with other international agencies in cancer prevention and control.
- Contribute to country assessments that will review existing and identify needed cancer prevention and control capabilities.

*Most cancer deaths now occur in low and middle income countries, where resources for prevention, diagnosis and treatment of cancer are limited or non-existent.*



P. Pavlicek/IAEA

- Contribute to the establishment of PACT *Model Demonstration Sites* (up to six countries in 2007), and fund the technical expertise and processes to evaluate the outcomes in *Model Demonstration Sites*.
- Support multidisciplinary cancer training needs and develop centres for regional cancer training in the developing world, including the development of essential curricula for professionals and the development of funding proposals for *Regional Cancer Training Networks* in all regions.
- Design and begin executing funding proposals for additional countries in all regions. Work towards building a global alliance for cancer control to extend PACT concept from being an IAEA initiative to a **global alliance and fund for cancer control**.
- \$500 000–\$5 000 000 — Support for comprehensive cancer control programmes in a specific country, advancing that nation's cancer control system — from prevention through cure to palliation — and impacting thousands of lives.
- \$5 000 000–\$20 000 000 — Support for comprehensive cancer care programmes and training in a geographic region, working towards the entire African or Latin American continent, for example, to establish *Regional Cancer Training Centres* and to build lasting capacity to prevent, cure or palliate cancers.

For more detailed information and cost breakdowns, please contact [pact@iaea.org](mailto:pact@iaea.org).

## HOW DONATIONS TO PACT WILL BE UTILIZED

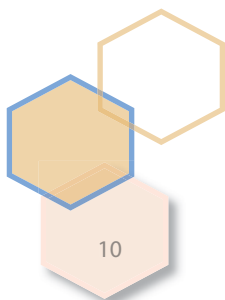
Funds donated could be used in the following ways:

- Up to \$20 000 — Support for critical needs assessments (*imPACT*) and development of cancer prevention, control and treatment programmes development in low income nations.
- \$20 000–\$100 000 — Support for in-country *Model Demonstration Sites* including advancing prevention, early detection, treatment and palliative programmes and the development of national cancer strategies and action plans.
- \$100 000–\$500 000 — Support for the provision of radiation therapy equipment to cure and when necessary palliate cancer patients, and to establish programmes to provide essential early cancer screening and diagnosis of common curable cancers.

***“A silent crisis in cancer treatment persists in developing countries and is intensifying every year. At least 50 to 60 percent of cancer victims can benefit from radiotherapy, but most developing countries do not have enough radiotherapy machines or sufficient numbers of specialized doctors and other health professionals.”***

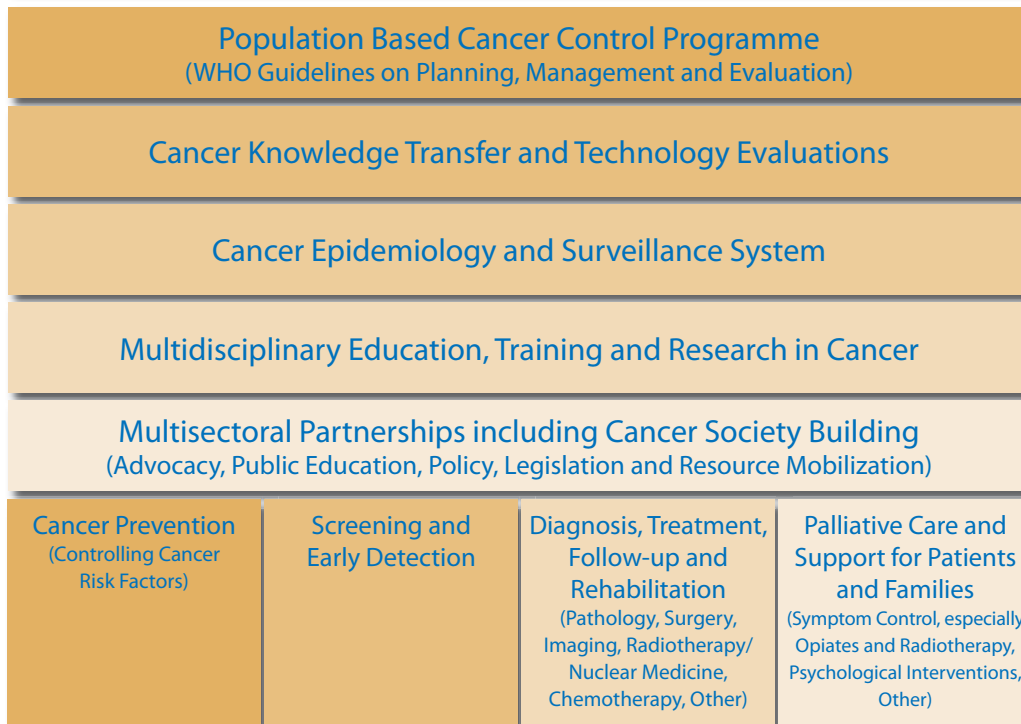
Mohamed ElBaradei,  
IAEA Director General

P. Pavlicek/ IAEA



## PACT's Integrated System for Comprehensive Cancer Control

Maximize the Impact of Interventions including  
Radiotherapy through Balanced Investments across the System



PACT's Integrated System for Comprehensive Cancer Control is all about timely and balanced planning of investments for improving the condition and outcomes for patients and people. The horizontal bars are the enabling components (prerequisites) for the delivery of outcomes in the vertical columns. Investments in the horizontal and vertical components are determined within the broader context of the health system development and financing, and the prevailing political and social factors.

## Collaborating Organizations

### Acronyms

ACS

C-Change

IARC

INCTR

UICC

MDSN

NCI

OSI

OU

TMC

WHO

### Organizations

American Cancer Society (USA)

C-Change (An agency comprised of government, business, and non-profit organizations in the US)

International Agency for Research on Cancer

International Network for Cancer Treatment and Research

International Union Against Cancer

MDS Nordion (Canada)

National Cancer Institute (USA)

Open Society Institute

Oxford University Department of Clinical Pharmacology (United Kingdom)

Tata Memorial Centre (India)

World Health Organization (AFRO, EMRO, EURO, PAHO, SEARO, WPRO)

*"I am impressed with the vision of PACT, by its substantial progress with scant resources, and by its plans to translate its vision into action ... there are important ways in which the National Cancer Institute can collaborate with the IAEA towards the realization of improved global cancer control."* — **Mark Clanton, Deputy Director, National Cancer Institute, USA**

*"The strategies for early diagnosis, treatment management, rehabilitation, pain relief and terminal care must be established in a comprehensive and multidisciplinary approach for a total cancer care programme."* — **Ketayun A Dinshaw, Director, Tata Memorial Centre, India**

*"A healthy global civil society ... is needed to strengthen existing intergovernmental organizations and to advocate and act on behalf of a global "good" society that strives to reduce inequities and to address problems that threaten to cause, or are already causing, serious damage to the planet and its people. Cancer is just one of these."* — **Ian Magrath, President, International Network for Cancer Treatment and Research, Belgium**

*"IARC is delighted to work to develop PACT. PACT presents the Agency with a unique opportunity to create a flagship activity in the application of nuclear technologies for the benefit of human health worldwide."* — **Dr. Peter Boyle, Director, International Agency for Research on Cancer**

*"UICC considers the success of PACT an absolute priority, since it represents the cornerstone of the health policy which will be necessary to avoid the looming cancer disaster in the developing world."* — **Dr. Franco Cavalli, President, International Union Against Cancer**

## Contact Us

For more information about PACT  
or to find out more about  
becoming a PACT partner  
or donor,  
please contact:

Massoud Samiei  
PACT Programme Manager  
International Atomic Energy Agency  
P.O. Box 100, Wagramer Strasse 5  
A-1400 Vienna, Austria  
pact@iaea.org  
<http://www-naweb.iaea.org/pact/>

IAEA Division of Public Information:  
D. Kinley III (Editor), A. Diesner-Kuepfer (Design)

Wagramer Strasse 5, P.O. Box 100, A-1400 Vienna, Austria  
Tel.: (+43 1) 2600 21270/21275  
Fax: (+43 1) 2600 29610  
E-Mail: [info@iaea.org](mailto:info@iaea.org) / [www.iaea.org](http://www.iaea.org)  
Printed by the IAEA in Austria, November 2006  
IAEA/PI/A.90/Rev.4 / 06-41101



Atoms for Peace: The First Half Century  
1957–2007

Programme of  
Action for  
Cancer  
Therapy  
**PACT**