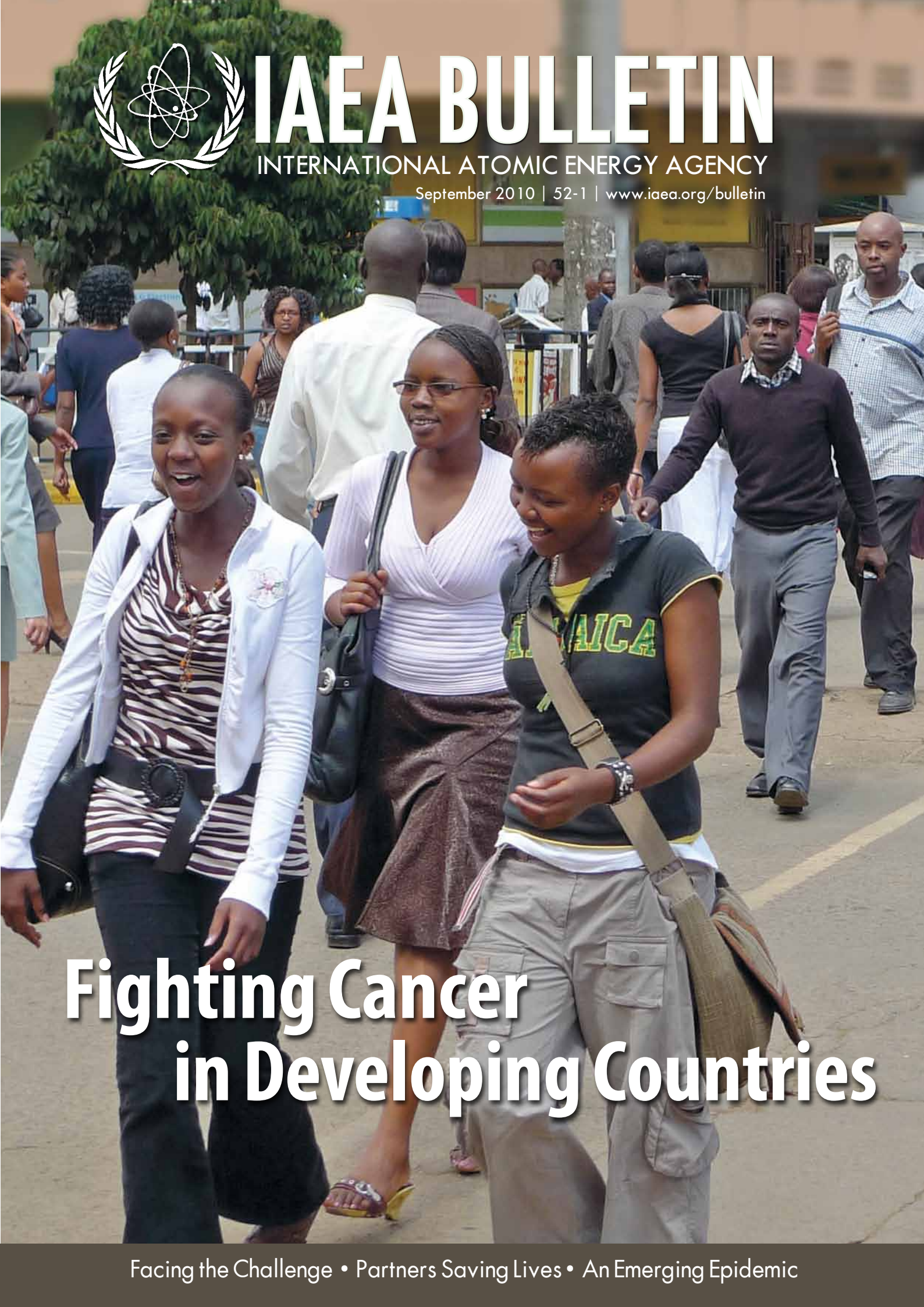

IAEA BULLETIN

INTERNATIONAL ATOMIC ENERGY AGENCY
September 2010 | 52-1 | www.iaea.org/bulletin

Fighting Cancer in Developing Countries

Facing the Challenge • Partners Saving Lives • An Emerging Epidemic

IAEA

The International Atomic Energy Agency serves as the world's foremost intergovernmental forum for scientific and technical cooperation in the peaceful use of nuclear technology. Established as an autonomous organization under the United Nations in 1957, the IAEA carries out programmes to maximize the useful contribution of nuclear technology to society while verifying its peaceful use.

The Agency helps IAEA Member States pursue their social and economic goals by supporting the responsible planning and use of nuclear science and technology, including generating electricity. The IAEA facilitates the sustainable transfer of the knowledge and technology needed by developing Member States to utilize these technologies peacefully. By developing nuclear safety standards, the Agency promotes the achievement and maintenance of high levels of safety in nuclear energy applications, as well as protecting human health and the environment against ionizing radiation. The Agency also verifies through its inspection system that States comply with their commitments under the Non-Proliferation Treaty and other non-proliferation agreements to use nuclear material and facilities only for peaceful purposes.

The work is multi-faceted and engages a wide variety of partners at the national, regional and international levels. IAEA programmes and budgets are set through decisions of its policymaking bodies — the 35-member Board of Governors and the General Conference of all Member States.

The Agency is headquartered at the Vienna International Centre. Field and liaison offices are located in Geneva, New York , Tokyo and Toronto. The IAEA operates scientific laboratories in Monaco, Seibersdorf, and Vienna. In addition, the IAEA supports and provides funding to the Abdus Salam International Centre for Theoretical Physics, Trieste.

Photo: Cancer patients in Nairobi, Kenya, wait in line for treatment at the local hospital. (P. Pavlicek/IAEA)

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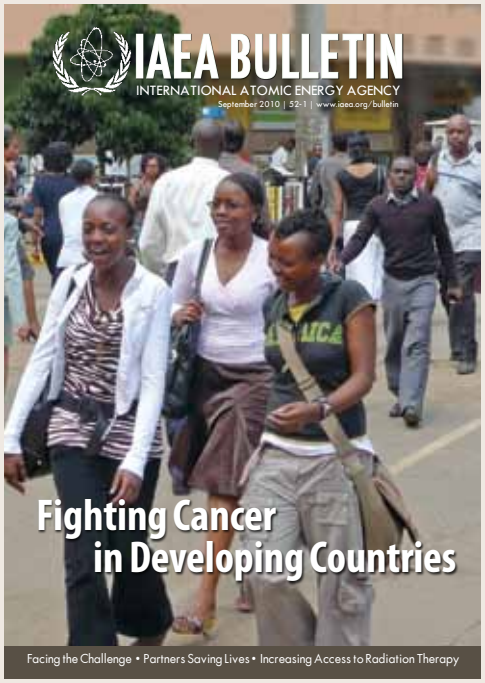

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Cover Photo: Pedestrians in Nairobi, Kenya, May 2010 (Petr Pavlicek/IAEA)

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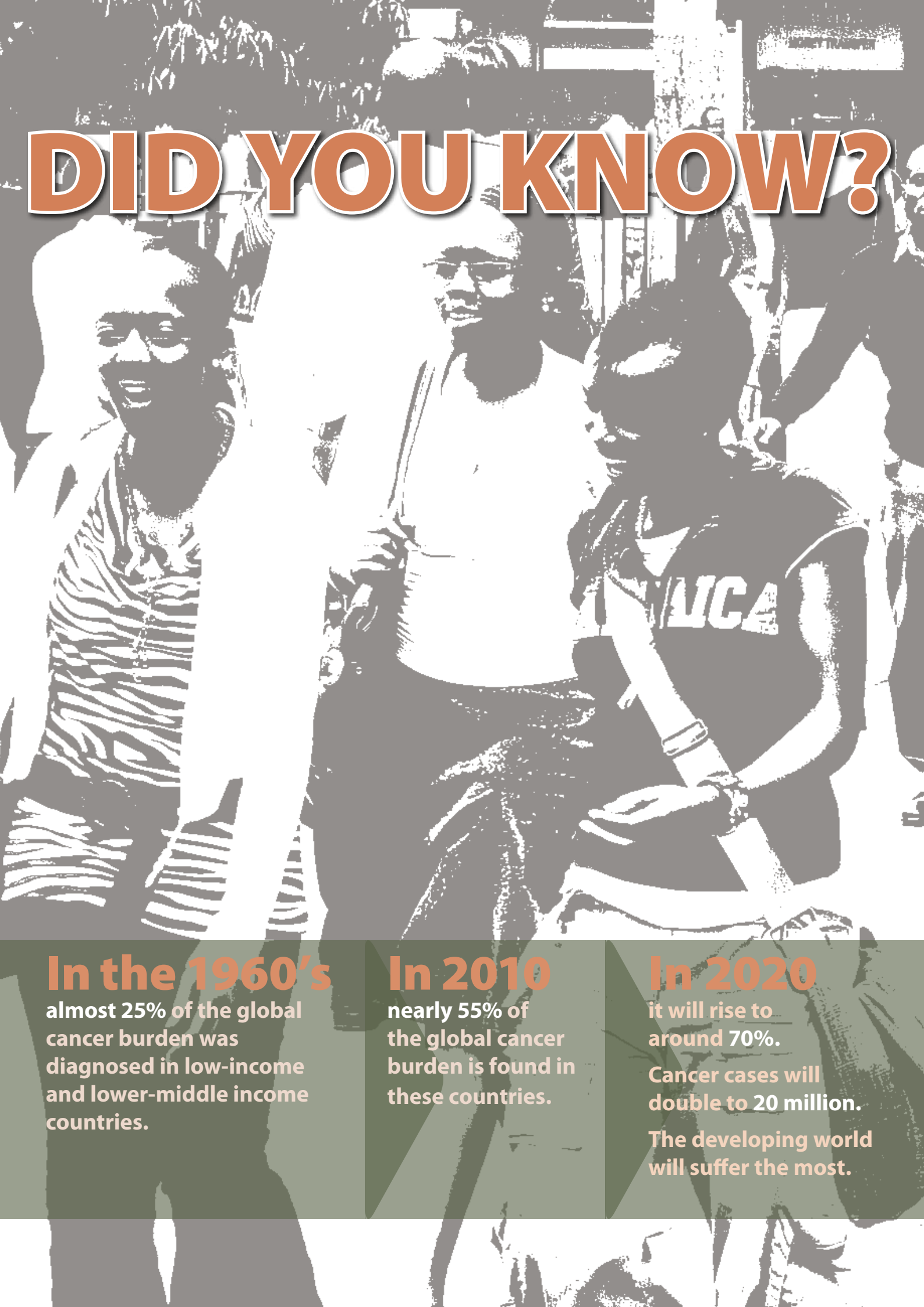

DID YOU KNOW?

In the 1960's

almost 25% of the global cancer burden was diagnosed in low-income and lower-middle income countries.

In 2010

nearly 55% of the global cancer burden is found in these countries.

In 2020

it will rise to around 70%.

Cancer cases will double to 20 million.

The developing world will suffer the most.

Cancer kills more people globally than tuberculosis, HIV, and malaria combined.

85 million people will die of cancer over the next 10 years unless nations take action to prevent these deaths. Low and middle income countries will be hit the hardest.

In high income countries, more than 50% of cancer patients receive radiotherapy.

In the developing world only **20%** of patients who need radiotherapy can access it today.

Today, an African woman's **risk** of dying from cancer is almost **twice as high** as that of her sisters in developed countries, who have greater access to cancer care.

IAEA has worked for **30** years in **115 low- and middle-income countries** to deploy radiotherapy and nuclear medicine programmes to combat cancer.

By 2030

over 13 million people will die from cancer every year.

Almost 9 million of these deaths will be in developing countries.

By 2050

at present growth rates, your chances of contracting cancer in your lifetime will be 50 to 60%.

The cancer rate will rise from 650 000 to 2.2 million per year.

Source: PACT/IAEA

Facing the

Werner Burkart, IAEA's Deputy Director General, Nuclear Science and Applications, spoke with Sasha Henriques about the IAEA's role in the improving cancer care and control in the developing world.

What will be the most significant achievement of this year's Scientific Forum focus on cancer?

The IAEA has more than 50 years of experience in using nuclear science to benefit mankind, which includes bringing radiation diagnosis and therapy to our Member States. But the general public and the media often know little about this because we have a public image dominated by our role as 'nuclear watchdog'. What many people do not realize is that radiation medicine is the cornerstone of cancer control. Hopefully, the Scientific Forum's focus on cancer will enable us to spread this message.

The IAEA does a lot of work in Africa. What is its principal role and what's the main challenge?

We help countries build their nuclear professional and regulatory frameworks by creating curricula in radiation medicine and medical physics, as well as training regulators and helping them craft the necessary laws to govern the industry.

One of the difficulties with bringing radiation therapy to Africa is the cost of the machines. And the industry produces increasingly complex and expensive machines. If we want to treat the millions of patients, and do it affordably, we need stable, robust and simple equipment. We have to reduce costs, but ensure that these machines are still able to provide the appropriate radiation therapy. This is not easy, and that's why we sat together with major manufacturers to discuss the issue. I am happy to be able to say that they understand and appreciate that cancer is an unfolding crisis in the developing world.

What kinds of equipment are best suited to cancer care in developing countries?

The cheapest radiation therapy machines rely on a radioactive source — Cobalt 60 or Caesium 137. They are very reliable and robust, and do not even need electricity to generate the radiation. However, the use of these machines has a nuclear security dimension. The high-tech replacement for radioactive sources is the "Linac" — the linear accelerator. They've become cheaper and relatively robust, and now there is the possibility that in the medium term there will be large-scale production of these machines.

The use of Linac machines eases the fears donors may have about the threat of terrorism associated with therapy machines that contain radioactive sources. But, I would like to make it clear that at this stage we cannot discount cobalt machines. In the short term they will still be the cheapest and the most reliable on the market. But in the medium term, the Linacs have the potential to please everybody.

Let me stress that, while providing machines is important, it is often at the end of the road, after skilled human resources and safety policies are in place.

Why are partnerships with other organisations so important?

Addressing cancer requires a holistic approach; it requires prevention, screening, treatment and palliation. The IAEA is restricted by its mandate and its image in the effort to combat cancer. The IAEA's mandate limits it to the provision of radiation diagnosis, radiotherapy and technologies. It is not in our remit to be involved in prevention campaigns such as tobacco control, no matter how important they are to the fight against cancer. But in other areas, like the early detection of breast cancer (for instance screening and X-ray mammography) we are an important player.

In addition, the IAEA's 'nuclear watchdog' image often prevents us from receiving large donations for the Programme of Action for Cancer Therapy (PACT). A professional and well organised donor, upon being approached, will immediately ask,

Challenge

Everybody, every family, every clan sooner or later has to fight the cancer that has befallen one of their loved ones. —*Werner Burkart*

"How is your project linked to the efforts of the WHO and the cancer control community?"

So, for these two reasons partnerships with agencies like the World Health Organisation (WHO) or the UICC (Union Internationale Contre le Cancer) are critical, if the IAEA aims to be part of cancer control in the developing world.

How is radiotherapy impacting the world, and how will it do so in the future?

Radiation medicine cures, or helps cure, a large fraction of cancers occurring in the developed world. I would urge people not to underestimate the socio-economic importance of radiation medicine.

We have 151 Member States, of which 30 Member States (that is 20%) have nuclear power plants. In the next 15 to 20 years, the number of Member States operating nuclear power plants may rise from 30 to 40, but not much more. However, every IAEA Member State already has radiation medicine infrastructure, because it is much easier to introduce and apply.

In addition, as the odds of developing cancer with age rise significantly, and as life expectancy in the developing world increases, the incidence of cancer rises sharply. Due to an ageing population, the need for this technology will grow more rapidly than the global economy.

Efforts to prevent cancers have continued for many years. Assuming that these are successful, do you still anticipate that there will be this great need for radiotherapy in coming years?

Everybody, every family, every clan sooner or later has to fight the cancer that has befallen one of their loved ones.

Even if the world makes a concerted effort to prevent all preventable cancers from now on, there would still be an almost crippling need for cancer treatment in the next 50 years, if only because of the cigarettes smoked in the past.

Unfortunately, the cancer crisis will be with us for decades to come. And we have a duty to act to mitigate its effects. This is why, just as in years past when communicable diseases were at the top of the health agenda for Member States, it is now time to focus on non-communicable diseases.

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Partners Saving

Ana María Cetto, IAEA's Deputy Director General, Technical Cooperation, tells Sasha Henriques how the IAEA helps countries develop the necessary tools to fight cancer.

(Photos: G.Verlini/IAEA)

Cancer affects people at an age when they still have the capacity to contribute their experience, productivity and knowledge to society and their families. So, anything that improves or extends the lives of people with cancer is very important. — *Ana María Cetto*

How does cancer impede development?

Any major public health issue is also a development issue in that it impedes national socio-economic development. In the recent past, communicable diseases used to be the main public health issue in developing countries.

However, the incidence of non-communicable diseases like heart disease, cancer and diabetes is increasing, impacting millions around the world. This is true for cancer in particular because the incidence of cancer is growing quickly in developing countries. Looking at the statistics you can see that the largest fraction of new cases is emerging in developing countries, where already 70% of all cancer cases occur.

Cancer affects people at an age when they still have the capacity to contribute their experience, productivity and knowledge to society and their families. So anything that improves or extends the lives of people with cancer is very important.

Why does cancer need to be part of the global health agenda?

Cancer is a national problem first and a global problem second. Developing countries are not prepared to cope with this increasing burden. To manage, they need to establish national policies, have enough well-trained health professionals, produce or have affordable access to the relevant drugs, and have infrastructure — hospitals, equipment etc.

Cancer is a global issue and should be on the international health agenda because it affects millions in every country around the world, and tackling the problem requires copious amounts of money. Therefore it's necessary to have better coordination between all the national and international stakeholders — the World Health Organisation, specialised agencies like the IAEA, non-governmental organisations, health ministries, and the private sector. Each one of these have their own interests, perceptions and agendas; together we need to find a unified way to address this issue.

How can the international community fight cancer more effectively?

The most effective way to fight cancer is through partnerships. They are crucial because there are so many specialised players out there. Each one of us has to understand the issue at hand and what can be done to contribute in relation to the other partners.

That is why partnership building has become so important. It means not only partnering for the sake of it, but

Lives

understanding what can the others do that we do not do, and what can we do that the others cannot.

The IAEA is well positioned to fight cancer because of its expertise in nuclear technology and the obvious lack of sufficient radiotherapy facilities and services in developing countries. The main source of technical cooperation in the world in the field of radiotherapy and nuclear medicine is the IAEA, whereas the WHO provides support in other critical areas of cancer control and prevention.

How does the IAEA help developing countries fight cancer?

We have been helping 115 developing Member States for over 30 years to strengthen their capacity to undertake both diagnosis and treatment using radiotherapy, and in recent years, nuclear medicine.

We support Member States mainly by providing equipment and expertise, knowledge sharing, and training, through the Technical Cooperation programme. This has enabled many of them to establish safe and effective diagnosis and radiation therapy capacity. But the existing infrastructure is far from adequate. Furthermore, there are new and more powerful techniques and treatments which every country deserves to acquire and put in place. A more integrated approach is needed, and this is what the IAEA promotes through the Programme of Action for Cancer Therapy (PACT).

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Access for Everyone

Juan Antonio Casas-Zamora, Director, Latin America Division, IAEA Department of Technical Cooperation discusses the human rights aspect of cancer care.

Are there disparities in cancer survival rates between countries, social classes and ethnicities?

Yes. This is a human rights issue which needs to be addressed. In practically every country those who have the economic resources are definitely going to get treatment, either in their own country or they have their own resources to travel abroad to get treatment. And those who don't have the money will not get treated.

I think that if one person has access, all people should have access to at least a basic level of treatment. That's why cancer should be part of the global health agenda, because there are many inequities in the access to cancer treatment.

So what is the IAEA doing to address these inequities in treatment and outcomes?

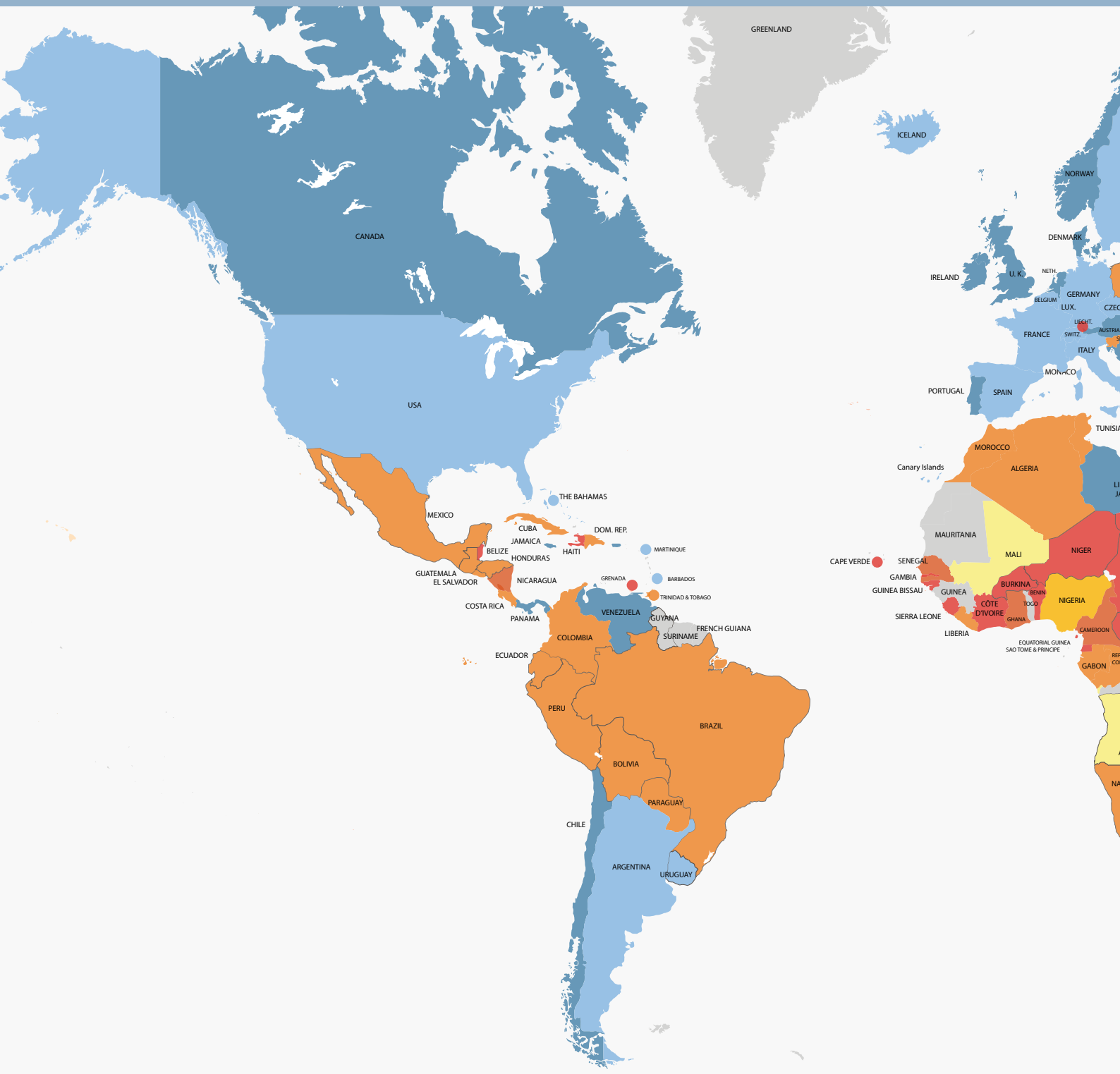
The Programme of Action for Cancer Therapy (PACT) has been doing a good job of raising awareness about the issue and working in partnership with local, regional and international organisations.

We normally concentrate on one major health institution in each country because the problem is too big for us to solve, plus it's not for us to solve, it's for the countries to solve. But we help the country to establish one facility that is fully functioning (which includes having well trained professionals) so that they develop the necessary capacity which can be spread to other health care institutions around the country.

Also, cancer is a field where new drugs, technology and equipment are constantly being developed, and the IAEA helps transfer this new knowledge to its Member States.

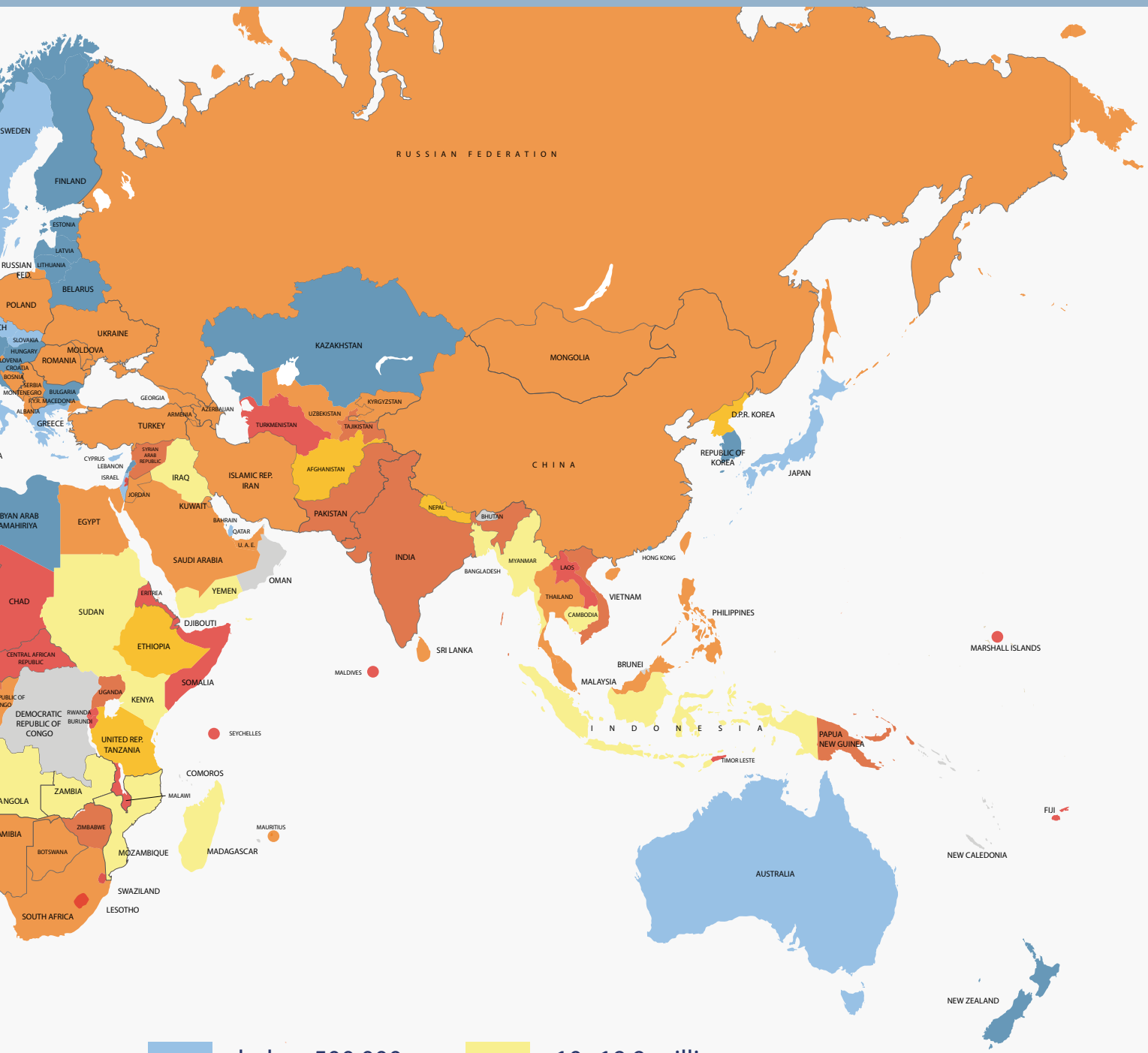
Availability of

Number of people served



Radiation Therapy

by a single radiotherapy centre



below 500 000

500 000–999 999

1–4.9 million

5–9.9 million

10–19.9 million

20 million and above

no centre

no data

(latest available data 1995–2003)

Access to Affordable Radi

The number of cancer cases is growing globally. Developing countries are worst hit by the cancer crisis, since the resources needed to prevent, diagnose and treat cancer are limited or nonexistent.

Radiotherapy is one of the essential components of treatment for many forms of cancer. In the developed world access to radiotherapy is readily available, but in the developing world access is scarce (see map on pages 8-9).

The problem is at its worst in sub-Saharan Africa where 80% of the continent's one billion inhabitants have no access to basic radiotherapy.

For over forty years, the IAEA has been assisting developing countries in the field of cancer diagnosis and treatment.

Now, the IAEA's Programme of Action for Cancer Therapy (PACT) — with technical support from the IAEA's Division of Human Health and Radiation Safety and Monitoring Section — has launched a new initiative that calls on manufacturers of diagnostic and radiotherapy technologies to provide affordable radiotherapy systems for the developing world.

According to PACT's Director, Massoud Samiei, there is a shortage of around 7000 radiotherapy treatment units, based upon the current number of cancer cases in developing countries. As the number of cancer cases increases, this situation is expected to get worse.

"Most low and middle income countries simply cannot afford the complex radiotherapy units currently on the market that cost over four million dollars each."

"Our initiative encourages manufacturers to simplify their designs while maintaining the same high level of safety and quality. We're asking them to deliver a one million dollar solution that contains all the essential equipment and includes a maintenance and training package," said Samiei.

The initiative is facilitated by an "Advisory Group on increasing access to Radiation Therapy" (AGaRT), which brings together radiotherapy users — doctors, physicists and medical staff from low and middle-income countries — radiotherapy suppliers and international organisations, including the World Health Organization (WHO), the International Electrotechnical Commission (IEC) and related professional societies.

Over the next few years, this consortium will be developing solutions to increase access to radiotherapy in developing countries that are safe, affordable and effective in low-resource settings.

In June 2010, the AGaRT members met for the first time at the IAEA's headquarters in Vienna and shared information with some 20 industry representatives on the requirements of cancer radiotherapy centres in developing countries.

Professor Paulo Eduardo Novaes, a senior radiation oncologist from São Paulo, Brazil said: "This meeting provided a unique opportunity to come face to face with manufacturers. Frequently the needs of

In the developing world, access to radiotherapy is scarce. The problem is at its worst in sub-Saharan Africa, where 80% of the continent's one billion inhabitants have no access to basic radiotherapy.

(Photos: P.Pavlicek/IAEA)

by Louise Potterton

ation Therapy Saves Lives

the manufacturers and the users are not the same. The products need to reflect the needs of the users — the patients and the doctors."

Vietnamese oncologist, Dr Dang Huy Quoc Thinh, stressed that there is a shortage of radiotherapy units in Vietnam where there are around 25 machines for a population of 87 million.

"Cancer is a big problem in Vietnam. We have about 150,000 new cases a year, and the waiting list for radiotherapy is very long. People die because we can't provide the treatment in time," he added.

Although this initiative to increase access to radiotherapy is in its infancy, the response from the industry has been positive. Some companies are already responding to the challenge.

Varian Medical Systems, for instance, has developed a system known as "UNIQUE™" that, according to the company, is affordable and suitable for low-resource settings.

Rolf Staehelin, Varian's Director of International Marketing, said: "As a market leader in this field, we want to make cancer care available to many people around the world and not just a few. With UNIQUE™ we have the solution readily available to achieve this challenging goal."

"When we talk about cancer treatment we don't just mean equipment; we need to offer a complete solution. This should include extended services, to ensure long-term maintenance, education and training services. Today, UNIQUE™ is already in clinical operation and we're delivering the first systems to radiotherapy centres in India."

Varian Medical Systems developed "UNIQUE™", a cost-effective radiation oncology solution that is affordable for low-resource settings.
(Photo: Varian)

The sad reality, notes the IAEA's Samiei, is that the "future customers" of radiotherapy equipment are in developing countries where the majority of cancer cases occur. According to global estimates from the World Health Organization, by 2020 there will be around 20 million cancer cases a year — with around 70% of these cases occurring in the less developed parts of the world.

More affordable cancer radiotherapy technology is more urgently needed with each passing year, as the cancer epidemic spreads.

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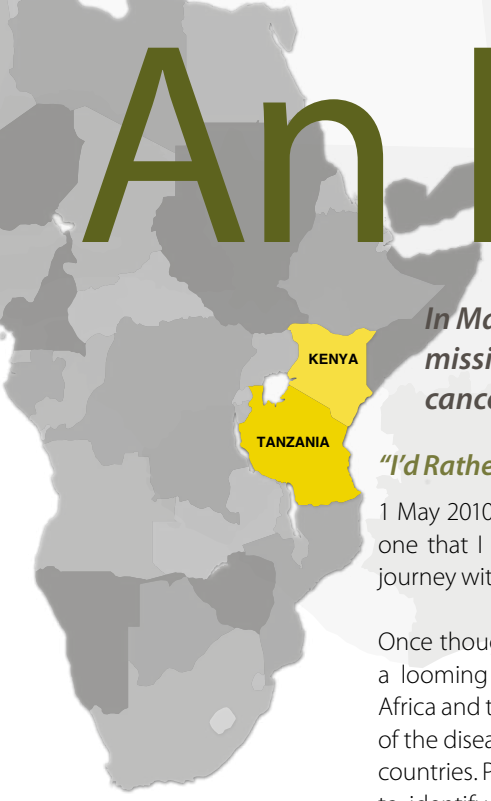
In June 2010, the AGaRT members met at the IAEA's headquarters in Vienna to share information with industry representatives on the requirements of radiotherapy centres in developing countries.
(Photo: D.Calma/IAEA)

An Emerging



In May 2010, Dana Sacchetti was given the opportunity to accompany an IAEA mission to Tanzania and Kenya. Its objective — to comprehensively assess the cancer situation in both countries.

"I'd Rather Have AIDS Than Cancer"

1 May 2010 — An unimaginable sentence, and yet one that I heard in conversations throughout my journey with cancer patients in Tanzania and Kenya.

Once thought of as a 'rich world' disease, cancer is a looming public health catastrophe across east Africa and the developing world. Rates of incidence of the disease are rising in low- and middle-income countries. People lack access to information on how to identify early signs of different cancers. Those who do seek treatment typically have few options. Medication is expensive. Facilities are few and over-crowded. Compounding the challenge are the many stigmas attached to the disease.

A patient diagnosed with cervical cancer in Kenyatta National Hospital told me, "With HIV/AIDS, at least I know I have a fighting chance. The antiretrovirals are inexpensive and readily available, and people can live with the disease. With cancer, we just don't know how to cope."

Frederick Ikutwa, 41, is a proud cancer survivor living outside of Nairobi. "I owe my life to doctors who caught my cancer in time," he explains.

(Photo: D.Sacchetti/IAEA)

Feet on the Ground

2 May 2010 — Dar es Salaam: a teeming city on Tanzania's Indian Ocean coast. Choked with traffic. Congested with people. Movement and life everywhere.

Cancer is rapidly becoming a big problem in places like Dar. Minibuses and taxis belch out polluting fumes, diets are increasingly unhealthy, and the sedentary life of the city dweller are all factors leading to increased incidences of cancer in countries like Tanzania.

Making matters worse, this city of nearly 4 million people holds few options for cancer treatment.

Yet a beacon of hope can be found along Dar's verdant shoreline. Ocean Road Cancer Institute is a small hospital, set up five years ago to offer much-needed cancer treatment to Tanzania 's residents. At Ocean Road , hundreds of people are given daily access to radiotherapy machines, nuclear medicine, and chemotherapy drugs to fight the disease.

Meeting Muzne

3 May 2010 — It was at Ocean Road that I met Muzne Abubakar Haibar, a sweet and gentle mother of four. Nearly 40, Muzne comes from Zanzibar, a picturesque gem of an island known for its beautiful beaches and stony city center. About three years ago, Muzne discovered a lump in her breast, and quickly sought medical treatment. She was first diagnosed with breast cancer at Ocean Road in 2008, and had a partial mastectomy, or lumpectomy, performed at the time. Muzne immediately followed up this treatment with chemotherapy, and tests appeared to indicate that doctors had removed all cancerous tissue.

Unfortunately, the cancer returned months later, as Muzne began to experience deep pain within her chest. Her doctors then opted for a full mastectomy and a further regimen of chemotherapy.

"I thought I was ok then," she explained, recounting the experience of losing a breast to surgery. Muzne told me about the toll that her cancer had taken, not just on her body but on her family as well. Since Zanzibar is a three-hour ferry ride away from Dar es Salaam, she was separated from her family for weeks at a time during surgery, chemotherapy, and recovery.

Her fight took yet another turn for the worse when doctors discovered that her cancer had metastasized, or spread, to her spine. The day we met, she began to receive radiotherapy, and still seemed hopeful that she would pull through.

Epidemic

by Dana Sacchetti

Led by the IAEA's PACT program, these missions strive to bring policymakers, doctors, and international organizations together to see what can be done to fight cancer at the national level. This is Dana's personal account of encounters with patients living with cancer, the doctors and health providers who treat them, and the administrators who set strategies for combating the disease.

The Children

4 May 2010 — Among the most arresting and powerful experiences from the trip was spending time in the children's ward at Ocean Road. Coming face-to-face with young lives that had been interrupted by various cancers is heartbreaking. But what struck me most was how avoidable many of the cases were.

One of the greatest success stories in oncology in recent decades has been in treating retinoblastoma, a cancer of the eye's retina that typically occurs in early childhood. In developed countries, signs of the cancer are quickly picked up and over 95% of children are cured. It's one of the more treatable forms of cancer as chemotherapy and other measures usually produce positive results.

Yet in Tanzania and Kenya, children and parents lack knowledge of the disease and have no access to health care. They seek treatment in later stages of the disease, which increases the risk that the disease may have spread.

This experience drove home the following point: it's not going to suffice to simply implement cancer therapy and viable health care strategies. Public outreach and education on cancer must play a strong role to foster early detection and screening for children and adults across the region.

The Models of Mwanza

6 May 2010 — We traveled up country to Mwanza, Tanzania's second largest city, to meet senior staff at the Bugando Medical Centre. The hospital, like so many across east Africa, is overburdened and understaffed. It serves a regional population of 14 million people. With a dearth of health services in the Lake Victoria region, many patients travel a great distance to Mwanza for treatment from the neighboring countries Burundi, the Democratic Republic of the Congo, Kenya, Rwanda and Uganda.

Over the last two years, Bugando has taken the first steps to become Tanzania's second center to offer oncology services. In collaboration with the IAEA and WHO, medical staff received training in South Africa and Italy, a community cancer registry is up and running, and has drafted plans for buildings to house radiation therapy equipment.

Retinoblastoma is a curable condition, but a large percentage of children in developing countries die because of lack of awareness and access to appropriate medical care. This child was receiving treatment at the Bugando Medical Centre in Tanzania. His prospects are good for a full recovery.

(Photo: D.Sacchetti/IAEA)

As we made our way to the oncology department, we passed a ward where a group of women and children quietly milled about. Some seated in bed, some standing, most receiving care for cancers of the breast and cervix.

We were introduced to the group, and within minutes, the room metamorphosed from cancer ward to fashion studio. Each of the women stood proudly before our cameras, wanting to be photographed.

"Me too! Me too!" they exclaimed, as we moved about the room, capturing each of them in moments that reflect a solemn strength and a frank openness that lays bare their struggle with cancer. They wanted to put a public face on their private battle, and for that, it was one of the most moving portions of the trip.

You can view a selection of their photographs at: http://j.mp/aXDC7E

To read a complete account of these stories, please visit www.iaea.org/blog/cancer.

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Source

Set up in 2008 with the IAEA's support, El Salvador's only brachytherapy centre is located within the Cancer Institute "Dr. Narciso Díaz Bazán".

1 The Cancer Institute "Dr. Narciso Díaz Bazán" is El Salvador's only brachytherapy treatment facility for women affected by uterine cancer.

2 Plaque of El Salvador's Cancer Institute "Dr. Narciso Díaz Bazán".

3 Patients accompanied by family members waiting for their turn for treatment.

4 Dr. Gonzalo Beltran Castro, Director, with Dr. Reynaldo Castillo, Chief of Brachytherapy.

# of Hope

by Nancy Falcon Castro/UNIDO





To date, over 1000 women affected by cervical cancer have received treatment in the centre.

5 Dr. Castro and head nurse Jasmin Franco Mejia reviewing the list of patients awaiting brachytherapy treatment.

6 Mabel Jesenia Pérez González, 38, a mother of two, waiting to start treatment.

7 Mabel with Dr. Castillo and head nurse Jasmin Mejia.

8 María Emelda Molina Sanchez (left), Medical Physicist, and Dr. Alexander Molina Martínez (right), radiation oncologist, mark a patient's x-ray. These points are digitized to develop a treatment plan.

9 Dr. Molina, digitizing a patient's brachytherapy treatment plan to determine the optimal dose to prescribe.

10 Dr. Castillo and Dr. Molina evaluating the treatment plan of a patient with uterine cancer.

11 Dr. Sierra, anesthesiologist, prepares a patient for brachytherapy.

12 A nurse monitors a patient's treatment by closed-circuit television. She uses an intercom to inform the patient, lying in the radiation shielded treatment room, about the course of treatment.

13 Rosa Imelda Valladares, 42, mother of three, talks to Dr. Castillo. In April 2009, Rosa Imelda received her final brachytherapy treatment. Medical examinations show no signs of recurring cancer.

14 Sonia Etelvina Orellana de García, 47. In December 2009, Sonia had her first check up following brachytherapy treatment. Nine months later (June 2010), she received the good news: the treatment course was successful.

Photos: Nancy Falcon Castro/UNIDO • Text: Nancy Falcon Castro/Giovanni Verlini • Design: Ritu Kenn

About the Bulletin

On 13 April 1959, the IAEA Board of Governors authorized the publication of a "bulletin". Proposed by the IAEA's first Director General, Sterling Cole, the Board had for two years discussed the periodical's purpose and intended audience, before agreeing ultimately that the bulletin should be written for a "non-technical" audience and published in the Agency's official languages.

Originally titled "World Atomics", the "IAEA Bulletin" passed the half-century mark in 2009, and thus far has carried over 2,000 articles.

Soon, another milestone in the Bulletin's development will be reached: the journal will become an online publication and mass printing will cease. This is the Bulletin's last full-colour print issue. In future, a monochrome print issue will be distributed only to depository libraries, including those designated by the United Nations, to sustain the existing archives.

As an Internet journal, the Bulletin reaches a much wider audience than the print issue and at significantly lower cost to the environment and to its funders, the IAEA Member States. The on-line Bulletin will also be published in all six official IAEA languages. Since it will be delivered to our readers electronically, Internet accessibility is an important priority for us. We are working to ensure that those with weak Internet links or with disabilities can easily read the on-line articles.

In his April 1959 letter to the Board of Governors, introducing "World Atomics", Cole wrote that the periodical "cannot hope to reach all potential readers directly." With the new media available today, we can hope to reach "all potential readers". By providing "information on the peaceful uses of atomic energy throughout the world", Cole foresaw that the Bulletin would help establish "a sound public understanding of atomic energy". The on-line Bulletin promises to inform more readers and establish a broader awareness of the peaceful uses of atomic energy than ever before.

Most importantly, through the new on-line Bulletin we hope that you, the reader, and we, the publishers, will begin a dialogue. We are just a 'click away'. Your comments, ideas, and suggestions will be vital in helping us shape your new Bulletin as it evolves over the next fifty years.

— Peter Kaiser, Editor-in-chief

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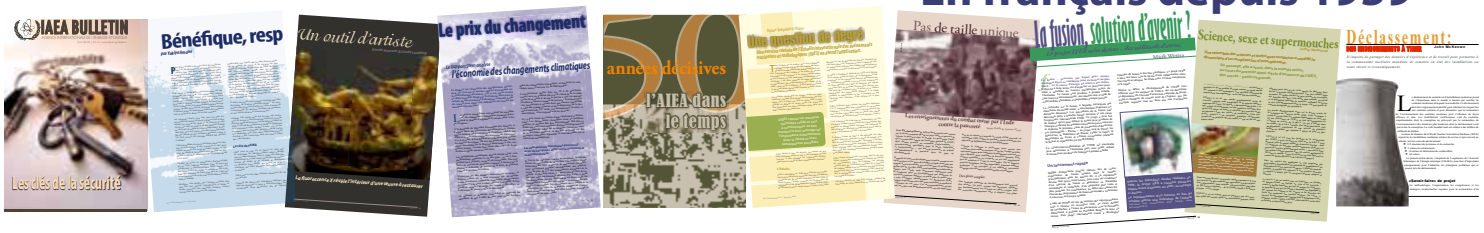

на русском языке с 1959 года

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