



# WATER AND WAR

## ICRC RESPONSE



ICRC

This publication is dedicated to our colleagues and friends, Mary Jean Lacaba, Eugenio Vagni and Andreas Notter, who were abducted in the southern Philippines on 15 January 2009, while working on a water and habitat project. To our great relief, eventually they were freed: Mary Jean and Andreas in April 2009, and Eugenio in July 2009. We are proud of their dedication and determination in helping those in need.

The Wathab team, 16 July 2009.



**ICRC**

International Committee of the Red Cross  
19, avenue de la Paix  
1202 Geneva, Switzerland  
T + 41 22 734 60 01 F + 41 22 733 20 57  
E-mail: [shop@icrc.org](mailto:shop@icrc.org) [www.icrc.org](http://www.icrc.org)  
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Front cover: Pier Giorgio Nembrini/ICRC

**Because it is essential to survival, water is given specific protection under international humanitarian law.**

**ARTICLE 54, para. 2**  
**Protocol I additional to the Geneva**  
**Conventions of 1949**

It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.



# FOREWORD



Marko Kokic/Federation

In 2050 the world's population, estimated today at 6.8 billion, will have grown by 50%. In addition to the expected depletion of the world's natural resources, urbanization, migration, new forms of land use, the global economic crisis and climate change will have far-reaching effects on water resources. Well-managed water resources are indispensable for sustaining economic development and agricultural and industrial production.

More than half the people in the world live in towns and cities. Urbanization, which includes unplanned migration from rural to urban areas, is taking place even as many governments are failing to expand their services. The strain on obsolete infrastructures – unable to meet existing demands for water, sanitation and electricity leads to increased tensions within communities and, in some cases, to armed violence. This continuing trend makes it even more difficult to achieve the United Nations Millennium Development Goals for water and sanitation.

The growing frequency and intensity of natural catastrophes (e.g. the drought in the Horn of Africa and in the Middle East, cyclones and floods in South-East Asia and the Caribbean) affect the entire planet, but their impact on vulnerable people is especially severe.

To cope with the combined impact of armed conflicts and natural disasters (e.g. the tsunami in Sri Lanka and in Indonesia), they require aid adapted to their needs.

Although the issue of water usually encourages cooperation between countries sharing cross-border resources, it can also be a source of tension or conflict between communities; water shortages can exacerbate existing tensions and force people to migrate. In such circumstances, a water project can help ease tensions. This is illustrated by the many projects carried out by the ICRC in Darfur, Somalia and Yemen.

The nature of armed conflict has changed markedly throughout the world since 11 September 2001; and the number of armed groups has risen dramatically. These trends pose new challenges for the ICRC's neutral and independent activities. Even at the height of the fighting, the ICRC is able to use its networks and contacts with all parties to reach out to the most vulnerable. This was demonstrated on the ground during acute crises such as Afghanistan in 2001, Iraq in 2003 and Lebanon in 2006, and more recently in Sri Lanka, the Philippines and the occupied Palestinian territories, Yemen and Pakistan (2008–2009). The ICRC's response is more effective if it is implemented in cooperation with the beneficiary communities and/or the relevant authorities.



François de SURY/ICRC

In 2008, close to 15 million people in more than 40 war-affected countries benefited from ICRC water and habitat programmes, with more than 400 engineers and technicians working under often extremely difficult conditions. In the event of an armed conflict or other situation of violence, the objective of the ICRC's water and habitat programmes is to reduce health risks – such as water-borne diseases – for the communities. The ICRC's emergency response is activated immediately; it is followed by rehabilitation projects providing essential services: access to safe drinking water, sanitation and health-care facilities. The ICRC's response is directed, above all, at improving the living conditions and dignity of victims of armed conflict.

The ICRC's operations continue to meet the most pressing needs of men, women and children affected by armed conflict, while remaining mindful of environmental considerations. By implementing innovative and sustainable solutions, the ICRC is striving to reduce its carbon footprint without compromising its effectiveness in the field. It is committed to developing new approaches and to ensuring that its projects, while remaining responsive to global changes, continue to provide effective assistance to people affected by conflicts.

This publication looks at some vital issues associated with water and sanitation in conflict-affected countries where the ICRC is working.

Robert Mardini  
Head of the Water and Habitat Unit

# NEUTRAL AND INDEPENDENT HUMANITARIAN ACTION

**To ensure maximum access to the persons affected, the ICRC's action is based on neutrality and independence.**

Neutral, independent and impartial humanitarian action in the event of armed conflict and internal violence is at the heart of the ICRC's mandate and a fundamental part of its identity. This approach is intended to give the ICRC the widest possible access to the victims. To do this, the organization seeks dialogue with all the actors involved in a given armed conflict or other situation of violence, as well as with the people suffering the consequences, in order to gain their acceptance and respect. Its neutral and independent approach also enables the ICRC to ensure the safety of its staff. In this way, the organization is able to reach people on either side of the front lines in active conflict areas around the world. In many cases, this entails negotiating with the relevant parties to gain access to battlefields or hospitals, for example, in order to facilitate the delivery of humanitarian services to the victims of conflicts.

It is in this context that the ICRC's Water and Habitat unit operates. Assistance includes construction, engineering, providing access to water, sanitation, hygiene and environmental protection. Engineers assess the water and housing needs of victims of armed conflict, they plan projects to solve the problems encountered, they negotiate with local authorities and firms regarding project implementation, they supervise the execution of the projects and they handle all aspects of their management. Water and habitat activities are designed to ensure that people have access to clean water and proper sanitation at all times and live in a healthy environment.

## Iraq

The ICRC's presence in Iraq dates back to the early 1980s. It was reinforced at the time of the 1990–1991 Gulf War, when the ICRC was the only international organization present in Iraq, becoming the humanitarian organization of reference. Over the years, the ICRC has implemented major infrastructure projects with the relevant ministries, in particular with the national authorities in charge of health, water and sanitation. Millions of people have thus been given better access to water, sanitation and health infrastructure, which has also helped to consolidate the ICRC's reputation as a reliable, effective and neutral humanitarian organization.

During the acute phase of the conflict in 2003, the ICRC was once again the only major humanitarian organization still present and working in Iraq. It adapted its *modus operandi*, developing new management tools and remote-control mechanisms to ensure the continuation of its humanitarian activities in high-risk areas or areas that were difficult to reach. Ensuring water supplies and sewage disposal, and supporting health facilities, are examples of the work done within this new ICRC operational framework. An ongoing dialogue often leads to the ICRC being perceived positively and accepted by all.

## Haiti

In 2003, when the ICRC first visited Cité Soleil, the shantytown was considered the most dangerous place in the country. Cité Soleil is a striking example of the positive changes that the ICRC's neutral and independent intermediary role can make in civilians' lives in contexts

of extreme urban violence. Between 2005 and 2006, on the basis of contact established and negotiations conducted with all the authorities and parties concerned, including gang leaders, the Haitian National Red Cross Society and the ICRC were among the few humanitarian organizations able to reach and work in Cité Soleil. The ICRC and the Haitian Red Cross were able to restore minimum water supply for the 200,000 inhabitants by making it safe for the relevant government service to access the facilities.

## Somalia

Since 2005, the conflict has become increasingly complex and polarized. The recurrent violence and the recent natural disasters have had a disastrous effect on the civilian population. The situation is made worse by the lack of public infrastructure.

As the ICRC has maintained a presence in the country since 1977, all parties to the conflict and the beneficiaries themselves have witnessed its activities and understand that its work is carried out in a spirit of neutrality and impartiality. This recognition has enabled the organization to continue its activities, such as rehabilitating wells and improving the productivity of people farming the land.

The ICRC also relies on a dense network of contacts and partners such as the Somali Red Crescent Society. Indeed, without the latter, the ICRC would not be able to understand the realities of the country or to reach as many victims as it does.





Carina Appel/ICRC

## Yemen

Poor security conditions and fierce fighting in the northern governorates of Yemen have had a dramatic effect on the civilian population in recent months, forcing increasing numbers of people to flee the area.

The lack of clean drinking water and medical care is a particularly serious matter for displaced persons, the sick, the wounded, and isolated communities.

However, the unstable security situation has often prevented the ICRC from responding to the most urgent humanitarian needs in a timely and appropriate manner. The ICRC is working in the town of Sa'ada and its immediate vicinity and is trying to expand its field of action as soon as conditions allow. Numerous water and sanitation projects have been launched for displaced persons who have fled the fighting and made their way to camps in Sa'ada city. Other infrastructure projects have been carried out (deep boreholes and water reservoirs) in the villages affected by the fighting in order to improve access to drinking water and to water for agricultural use.

The ICRC maintains a dialogue with the authorities with a view to gaining better access to the most severely affected areas. It also seeks to promote understanding among the Yemeni armed and security forces of international humanitarian law and of the ICRC's mandate.

## Neutrality

In order to continue to enjoy the confidence of all, the ICRC may not take sides in hostilities or engage at any time in controversies of a political, racial, religious or ideological nature.

There are two sides to neutrality. On the one hand, military neutrality prohibits any activity that could facilitate the conduct of hostilities by any of the parties involved. On the other, ideological neutrality implies standing apart at all times from political, religious or any other controversies in which the ICRC, were it to take a position, would lose the trust of one segment of the population and thus be unable to continue its activities.

## Independence

Providing care and assistance and doing so in complete independence: that is the ICRC's line of conduct. To act accordingly, the organization must rely on its own assessment, made on the basis of objective criteria. It must not give in to political pressure or let itself be swayed by public opinion.

# WORKING TOGETHER: THE ICRC AND ITS PARTNERS

A water, sanitation or habitat programme cannot be carried out successfully unless a partnership is established with a wide range of local and sometimes international agencies. The ICRC works with these partners to develop solutions that meet the people's needs and are in line with their culture and state of technological development. This cooperation takes place at every stage of a project, from its inception to its transfer to a local entity.

## THE RED CROSS AND RED CRESCENT MOVEMENT

In September 2008, the ICRC and the Philippine National Red Cross provided assistance for displaced people on the island of Mindanao, distributing tents and building sanitary facilities at the reception centres for displaced persons. In order to strengthen the capacities of the local branches of the National Society, the ICRC provided basic training for its staff and distributed emergency kits to restore water distribution.

Following the devastating effects of cyclone Nargis in Myanmar, the ICRC helped the International Federation and the Myanmar Red Cross Society to develop local skills in the use of geographical information systems, which would help to improve the management of natural resources.

## HEALTH AUTHORITIES

The ICRC has been working in Iraq since the early 1990s and has built up a sound network of relationships with the health authorities. It has been able to carry out its broad programme of modernizing, constructing and providing support for primary health centres and hospitals, thanks to flawless cooperation with the local authorities and the ministries. In 2007, despite the poor security situation, 78 of the 140 projects completed in central Iraq were carried out by local partners. Since then, direct ICRC access to this area has increased.

## OTHER HUMANITARIAN AGENCIES

The ICRC worked closely with the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) to restore the main water pipes for the 30,000 refugees in the Nahr al-Bared camp (Lebanon) after the end of the fighting between the Lebanese army and Fatah-al-Islam in 2007. The ICRC covered the entire emergency period. UNRWA carried on the development work by making sure that the families' homes were connected to the water mains.

The ICRC also plays an active role and cooperates continuously with United Nations agencies and non-governmental organizations having geographical information systems to analyse data and establish common standards.



## DEVELOPMENT AGENCIES

As an organization that deals with emergencies and transition phases, the ICRC maintains an ongoing dialogue with development agencies, which frequently take over long-term projects after the ICRC has left.

## PRIVATE SECTOR

The conflict in Côte d'Ivoire substantially undermined the private operator in charge of water distribution, SODECI (Société de Distribution d'Eau de la Côte d'Ivoire). The ICRC started by delivering the chemical products needed to treat the water in the plants in the north of the country, outside the *Zone de Confiance*, which divided the country in two. The ICRC then ensured transport for SODECI staff, supplied spare parts and supervised the plants in coordination with SODECI. At the end of 2008, the ICRC completed its gradual withdrawal from a programme that gave more than one and a half million people continuous access to clean drinking water throughout the conflict.

# WORKING

### LOCAL COMMUNITIES

In Darfur (Sudan) villagers who had been trained and equipped by the Darfur water supply company before the conflict began were able to resume maintenance work on the pumps in areas inaccessible to the authorities. They did so under the aegis of the ICRC, which supplied them with equipment and supervised the work.

### LOCAL AND INTERNATIONAL SUPPLIERS

As maintenance is vital to the sustainability of its projects, the ICRC maintains special relations with its suppliers. For major infrastructure-rehabilitation projects, the ICRC therefore draws on the skills of suppliers that have been working on these facilities for 30 years. At Kisangani (Democratic Republic of the Congo) the ICRC worked in partnership with a local electricity company to refurbish a turbine at a hydro-electric power station that provides water for nearly one million people.

### GOVERNMENT AGENCIES IN CHARGE OF WATER

The ICRC has been working in Burundi since 1988 and has established a partnership with REGIDESO (the national board responsible for water in urban areas in Burundi), which entails joint evaluations, sharing responsibilities and costs, joint supervision of work and, once the work has been completed, maintenance by REGIDESO. This partnership has given more than 800,000 people access to water and, as a result of ICRC training courses, has enabled the technical capacities of REGIDESO staff to be strengthened. Thanks to this long-term partnership, REGIDESO has been able to obtain loans and finance from development agencies such as ECHO.

### THOSE IN CHARGE OF PLACES OF DETENTION

The ICRC has been working in the Rwandan prison environment since 1983 and continuously since the civil war and the genocide. During that time, it has made a broad contribution to improving the conditions of detention for more than 150,000 detainees in the central prisons and other places of detention in Rwanda. The approach has ranged from direct action to increasing training for the authorities and encouraging them to take responsibility for the prisons. The partnership between the ICRC and the Rwandan authorities is governed by a national-level agreement for each place of detention visited by the ICRC.

### UNIVERSITIES AND RESEARCH INSTITUTIONS

Following the eruption of the Nyiragongo volcano in 2002 (Democratic Republic of the Congo), the ICRC carried out a study in conjunction with the Swiss Federal Institute of Technology in Lausanne to determine the best possible way to restore the drinking-water supply network. The Institute simulated the networks and proposed extensions which were subsequently implemented in the field.

In Eritrea, where the arid climate poses a major problem for the water supply in rural areas, the ICRC joined forces with the Centre for Development and Environment at the University of Berne. Together, they devised a training module for the use of satellite images. Local hydro-geologists thus discovered many water points and fitted them with solar pumps.

# TOGETHER



Jen Bergqvistsson/ICRC



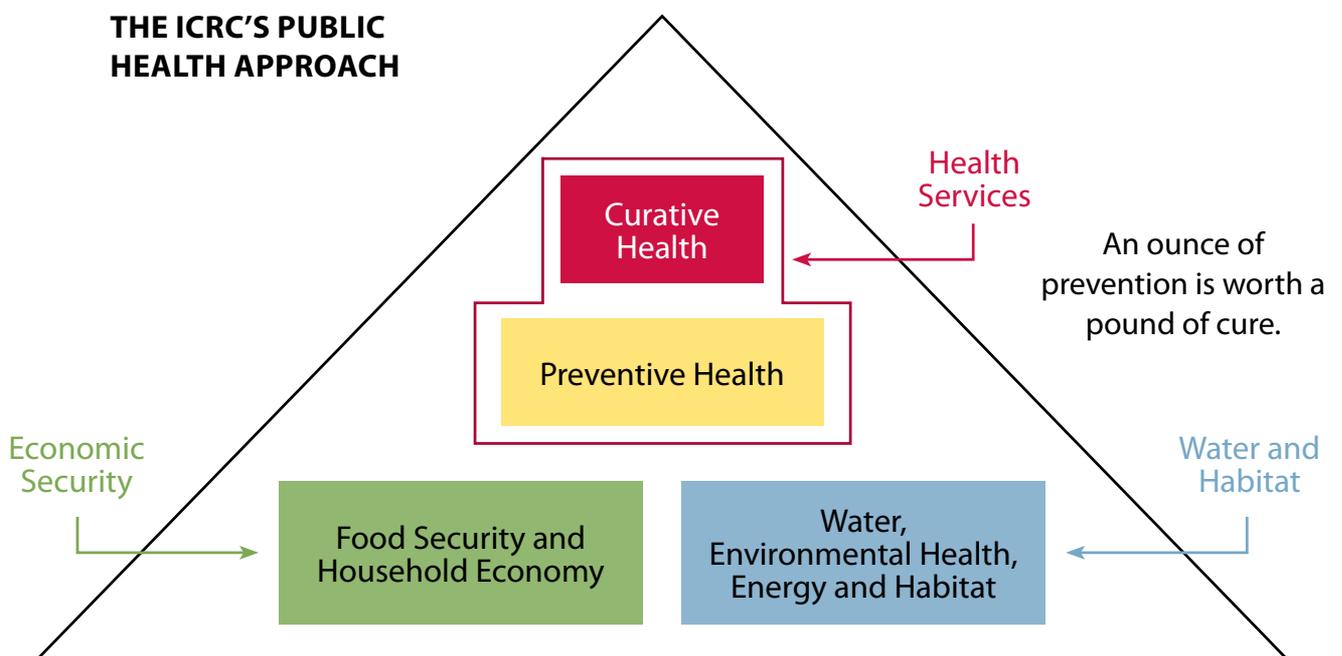
Marco Seratino/ICRC

# HEALTH

## Access to safe drinking water, to prevent diseases and epidemics, is crucial in times of conflict.

Access to water is frequently restricted because water supply or purification systems have been destroyed, because water reserves are located in areas that have become dangerous or because of massive displacement. People ultimately resort to sources of water with a high health risk. Many people contract water-borne diseases, thus placing even more pressure on under-equipped hospitals and dispensaries that are already hard put to cope with the influx of patients during the conflict. For this reason, water and sanitation work forms part of the “public health” approach pursued by the ICRC (see chart).

In 2008, close to 15 million victims of armed conflict and other situations of violence benefited from the ICRC’s public health activities in 43 countries.



## Shortage of drinking water

Large numbers of people were forced to flee areas in north-eastern Sri Lanka as the region was particularly badly affected by the conflict. They sought refuge in rural areas where more than 30 years of fighting have put a stop to the development of basic infrastructure. In such situations, there is, all too often, no choice but to make use of surface water, river water or rainwater, thus increasing the risk of water-borne diseases spreading.

Over the past two years, the ICRC has provided water committees in the north-east of Sri Lanka with material and technical support so that they can keep the water systems working. Water points were accessed and latrines built or repaired. The ICRC organized water distribution by tanker truck where necessary, a key factor in preventing the spread of water-borne diseases. In the medical sphere, the ICRC provided support for nine hospitals by

carrying out work to maintain and expand their water systems and building wards to accommodate the wounded. In addition, the morgues at three other hospitals close to the front line were repaired and expanded, to preserve the dignity of the dead and their families. Support was provided to enhance infrastructure, hence improving the working environment in 65 Red Cross health centres in Sri Lanka.



A woman draws water from a system providing chlorinated water to a primary health-care centre

## Medical services at risk

The facilities providing basic health care in Iraq are in a dire state as a result of decades of conflict, destruction and neglect. The defective water supply system and inadequate wastewater treatment have increased the risks for the people and the health structures.

From 1999 onwards, the ICRC began rehabilitating existing health centres and building new ones in parts of Iraq that were the scene of hostilities. In 2007, the organization constructed or renovated 13 hospitals and 25 primary health centres, many of them in the south of the country.

The ICRC adjusted to a very difficult security situation. It took direct action in the areas to which it had access and indirect action in areas presenting security problems by using well-known companies, whom it supervised rigorously from a distance. The

ICRC's presence in Iraq over many years has enabled it to set up a wide network within the local community as well as sound partnerships with the local authorities and water management committees.

This has many benefits in terms of public health. Public water and sanitation

infrastructure is rehabilitated so as to safeguard the health of individuals and to ensure that all parts of the health-care system, from the simplest dispensary to the reference hospital, function properly.



In northern Iraq, an operating room in a referral hospital that has been overhauled by the ICRC

## Epidemics

More than 60,000 people in Zimbabwe contracted cholera between August 2008 and the end of January 2009; 3,000 of them died of the disease (source: WHO). The disease spread mainly because of the shortage of drinking water, the dilapidated condition of the sewage disposal systems, the poor state of the health facilities and the shortage of medical staff.

In order to deal with the emergency in Zimbabwe, the ICRC is supplying twelve polyclinics there with drinking water and hygiene items required to treat patients. In order to stem the spread of cholera, it is working with various public entities to disinfect the homes of people with the disease. Toilets, blankets and clothing are sprayed with a chlorine-based disinfectant.

Also, in order to prevent the collapse of the entire water purification and distribution systems in the capital (population: three million), ICRC engineers have been providing support for the national water service in Zimbabwe for more than two years now.

To maintain the water system, and ensure its operation, the ICRC is supplying and helping to fit vitally needed spare parts.

Spraying and disinfecting the premises prevents the spread of cholera, malaria and other serious diseases



# IN 2008, THE ICRC WATER AND HABITAT ACTIVITIES ASSISTED 15 MILLION PEOPLE IN MORE THAN 40 COUNTRIES



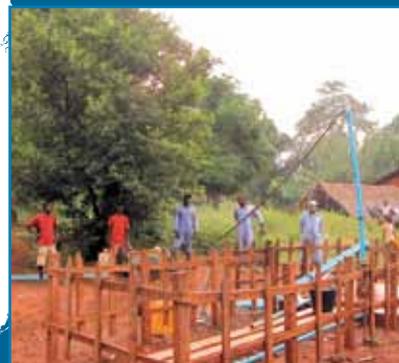
## Eastern Europe and Central Asia

Armenia	1,500
Azerbaijan	2,300
Caucasus	850,000
Georgia	85,000
Kyrgyzstan	2,500
<b>Total</b>	<b>941,300</b>



## Latin America and the Caribbean

Colombia	4,400
Haiti	214,000
<b>Total</b>	<b>218,400</b>



## Western and Central Africa

Central African Republic	180,000
Côte d'Ivoire	1,315,000
Guinea-Bissau	9,000
Guinea	349,000
Liberia	185,000
Niger	1,000
Republic of the Congo	9,000
Senegal	6,000
Togo	2,000
<b>Total</b>	<b>2,056,000</b>

Photo credits: ICRC  
This map is for information purposes only and has no political significance.



### Middle East

Iraq	2,577,000
Israel/Occupied territories	181,000
Lebanon	1,033,000
Syria	505,000
Yemen	127,000
<b>Total</b>	<b>4,423,000</b>



### South Asia

Afghanistan	215,000
Bangladesh	7,000
Nepal	8,000
Pakistan	230,000
Sri Lanka	118,000
<b>Total</b>	<b>578,000</b>



### East Africa

Chad	94,000
Eritrea	24,000
Ethiopia	212,000
Kenya	136,000
Somalia	725,000
Sudan	667,000
Tanzania	3,000
<b>Total</b>	<b>1,861,000</b>



### Central and southern Africa

Burundi	262,000
Democratic Republic of the Congo	631,000
Rwanda	60,000
Uganda	332,000
Zimbabwe	3,460,000
<b>Total</b>	<b>4,745,000</b>



### East Asia, South-East Asia and the Pacific

Cambodia	8,700
Indonesia	13,000
Laos	4,700
Myanmar	132,000
Philippines	80,000
<b>Total</b>	<b>238,400</b>

# DISPLACEMENT

**Massive flows of population require a rapid response. Particular attention must be paid also to the living conditions of host communities.**

At the end of 2008, the number of displaced people in more than 52 countries worldwide was estimated at 26 million by the Internal Displacement Monitoring Centre and the Norwegian Refugee Council. In the event of a large-scale displacement, humanitarian organizations must not only arrange emergency aid for the displaced persons but also take care to ensure that the assistance is not out of line with the living conditions of the local population, as that could upset, in the short or long term, the frequently delicate relationship between displaced people and local residents.

These people, who make their way to camps or are taken in by relatives, have nothing. Most of all, they need sturdy shelter and sanitary facilities to prevent the spread of disease.

## Massive and rapid displacement

More than two million people fled the fighting in Darfur (Sudan) between 2004 and 2008. They gathered in camps that have since grown to three times the size of the host community.

From the onset of the conflict, the ICRC worked to set up and/or rehabilitate water distribution points in the camps and along the migration routes used by nomadic communities, thus giving hundreds of thousands of people access to safe drinking water.

In the camp at Gereida, a town with a population of 15,000, where more than 120,000 displaced persons took refuge over a period of eight months, ICRC engineers set up a water supply and distribution system as well as sanitation and hygiene

facilities (latrines and waste-collection devices) with help from the Sudanese Red Crescent. These facilities made it possible to prevent what was certain to develop into a public health crisis and achieved a substantial reduction in the risks associated with fetching water from outside the camp. Finally, the construction of a child-feeding centre has made it possible to promote hygiene, thus helping to achieve a dramatic reduction in child mortality in the camp.

As a matter of priority, the ICRC is working among vulnerable rural communities to

enable them to remain in their villages, security situation permitting, rather than leave for camps for displaced persons. Aid should contribute to stability rather than be the cause of displacement.

**ICRC work at the camp has resulted in:**

- 6 independent water systems
- 850,000 litres/day of drinking water
- 600 distribution points
- 14 km of distribution pipes
- 19 reservoirs with a storage capacity of 800,000 litres of water



Robert Malotki/ICRC

## Effects on host communities

The ongoing conflict on the island of Mindanao in the Philippines has caused people to flee their homes frequently. People living in areas providing refuge for displaced persons are in a difficult position. Their means of survival and their environment (water, land, forests, food, infrastructure) are seriously affected by the mass influx of people, many of whom are destitute. This situation may lead to tensions between host communities and displaced persons.

Over the past three years, the ICRC has set up water and sanitation systems all over the island of Mindanao, in places that it considered likely destinations for displaced persons. The local people were therefore able to deal with the recent massive influx of displaced persons even before ICRC staff reached the area.

The organization also provided emergency aid in the towns which took in the displaced persons. For example, “water and sanitation” kits containing a selection of bladders, pumps and pipes for up to 15,000 people were sent to the town of Cotabato. The ICRC and the Philippine National Red Cross work together in these emergency activities.

The ICRC sets up water distribution points in a likely gathering place for displaced people on the island of Mindanao



## Lack of shelter and sanitary facilities

In August 2008, thousands of people fled the fighting and bombing during the conflict between Georgia and South Ossetia and the Russian Federation. As the region had been the scene of conflict in the past, centres for displaced people were often in a very bad state of repair: some of them were destroyed and all were lacking in sanitary facilities. Many more buildings and a great deal of infrastructure suffered further damage during the fighting of August 2008, making it even more difficult to provide shelter for displaced persons. People who decided to return home have had to rebuild their houses before the onset of winter.

Drawing on the experience that it has acquired over the past 16 years of working in Georgia with displaced people, the ICRC's initial response to the violence has been to carry out repairs in the centres for displaced people. Since August 2008, ICRC staff have been working with the authorities and the Red Cross Society of Georgia to convert abandoned public buildings into reception

centres and 20 of them have since provided shelter for 20,000 displaced persons. Before the onset of winter, the ICRC carried out major repairs at several centres in Tbilisi, Gori and in western Georgia, providing shelter for some 5,000 displaced persons.

The water and electricity supply systems in the zone to the north of Gori and Tskhinvali

are currently being repaired. The ICRC is helping the water committee in the town of Tskhinvali. In that rural region, families whose houses were damaged have been given basic materials so that they can carry out emergency repairs and remain where they are.

# DETENTION

### The physical and mental well-being of persons in detention must be protected.

During and after conflicts, the material conditions of detention and their consequences for the physical and mental well-being of detainees is a major concern. "Material conditions" are taken to mean a healthy environment that includes not only access to drinking water and water for washing, but also food security secured by kitchens that operate properly. It is also essential to ensure that the living quarters are clean and otherwise adequate (lighting, outside yard, sleeping areas, ventilation, parasite and insect control, etc.).

Where the prison authorities have very limited means, the ICRC's role is to provide them with support, particularly to deal with the high risk of epidemics caused by severe overcrowding. Existing facilities cannot cope with the constant increase in prison populations worldwide. In urban areas it is essential to take account of existing relations between the prison and the neighbouring population with regard to both water distribution and the risk of cross-contamination.

#### ARTICLE 20

Third Geneva Convention of 1949

... The Detaining Power shall supply prisoners of war who are being evacuated with sufficient food and potable water, and with the necessary clothing and medical attention...

#### ARTICLE 29

Third Geneva Convention of 1949

The Detaining Power shall be bound to take all sanitary measures necessary to ensure the cleanliness and healthfulness of camps and to prevent epidemics (...) In any camps in which women prisoners of war are accommodated, separate conveniences shall be provided for them.

Also, apart from the baths and showers with which the camps shall be furnished, prisoners of war shall be provided with sufficient water and soap for their personal toilet and for washing their personal laundry; the necessary installations, facilities and time shall be granted them for that purpose.

#### ARTICLE 97

Third Geneva Convention of 1949

... Women prisoners of war undergoing disciplinary punishment shall be confined in separate quarters from male prisoners of war and shall be under the immediate supervision of women.

## Inadequate training

The prison population in Indonesia has risen steadily over the past four years, leading to severe overcrowding and many hygiene problems. The prison system and its staff do not have the means to prevent the outbreak of epidemics.

In Indonesia, in cooperation with the director-general of prisons, the ICRC decided to adopt a structural support approach. Accordingly, over the past three years it has organized several seminars on the subjects of water, sanitation and health in prisons. The seminars, which were attended by three-quarters of the prison directors in Indonesia, consisted mainly of training in the assessment and management of public

health problems that become more acute as a result of overcrowding. In parallel, projects to improve hygiene and access to water were implemented in 2008 by the ICRC in 15 places of detention in Indonesia. Thanks to the involvement of the authorities and the mobilization by the ICRC of government and international agencies, the conditions of detention improved for tens of thousands of people.



In Indonesia, overcrowding poses a threat to detainees' physical and mental health. It is a major challenge for those running the prison

## Women and children

As in many other places, women and children constitute only a small percentage of the detainees in Ethiopia. Though they are given priority, because they are especially vulnerable, their influence on decision-making is negligible. Despite the fact that international humanitarian law specifically requires the separation of women and children from adult male detainees, they are often forced to share living quarters with men.

In Ethiopia, in cooperation with prison authorities, the ICRC helped to build separate blocks to meet the specific needs of women detainees and their children.

Over the past ten years, some 50 places of detention, where women and children account for 3-5% of all detainees, have been redesigned to cater to their needs,

creating enough space, well-aired, dry premises, and clean and segregated areas containing showers, washing facilities and latrines. Arrangements are therefore different from those for men: there are no bunk beds so that children can use bedding and there are twice as many showers, toilets and washing facilities.

The specific needs of women and children held in prisons must be given absolute priority



## Living close to prison

In 1994, after the genocide and the civil war in Rwanda, the prison population of the country was 150,000. Providing running water in prisons could not be contemplated until the same needs had been met for those not in prison.

Alongside its work in prisons and other places of detention in Rwanda since 1994, the ICRC has also implemented water supply and purification programmes, which have been of benefit to both detainees and

the people living close to prisons in all the major towns in the country. For example, a project in Remera, a suburb of Kigali, provided water for 100,000 people living in that area as well as in the local prison.

Installing biogas systems at the prisons also made it possible to minimize the harmful consequences for the environment and local neighbourhoods associated with waste produced by prisons.

## Poor sanitary facilities

The present infrastructure in the Philippines has made it impossible to curb increasing overcrowding. This means a considerable reduction in access to water, washing areas, showers and fresh air.

In agreement with the judicial and prison authorities, the ICRC has carried out rehabilitation work in many prisons in the Philippines – drilling wells, building reservoirs and septic tanks, connecting existing networks, installing bunk beds and improving the ventilation and the refuse

disposal systems. Biogas systems have also been installed in Manila and Davao prisons. With the support of the ICRC, the government organized round-tables to find viable and lasting solutions to the issue of prison overcrowding in the country.

Manila, city jail



# URBANIZATION

**Urbanization, growing and unplanned, is often a cause of violence today. Especially in major cities, essential infrastructure must be preserved.**

More than half the world's population lives in an urban setting, and the global slum population is likely to reach 1.4 billion by 2020 (UN-HABITAT). Towns are the scene of many different forms of violence that sometimes occur at the same time, for example, armed conflict, gang warfare, endemic community violence and organized crime.

In such situations, public services are often inadequate, if they exist at all. Shortage of funds and qualified human resources are the primary reasons why essential infrastructure (such as hospitals and water purification plants) are not maintained or become obsolescent. Moreover, the interdependence of the various services makes implementing solutions a more complex task: for example, sewage disposal depends on the water distribution network and the network depends on the power supply from the electricity grid. Another major concern is that it is difficult to find experts to run the services once they have been overhauled.

## Accelerating and unplanned urbanization

Originally built to house a few thousand workers, the Haitian shantytown known as Cité Soleil is today home to 200,000 people. In the period 2005–2006, lack of security forced the public services to abandon the shantytown, leaving residents without access to water or primary medical care. People had to travel long distances to collect water, putting themselves at even greater risk. The impossible task of maintaining the infrastructure and the inability to cover costs put a complete stop to all services.

The ICRC has been improving water supplies in Cité Soleil since 2005. It initially provided support for the State services to return so that essential water supplies could be restored in some key locations. It then worked with the authorities and local partners to repair 36 public standpipes at various points throughout Cité Soleil. Support was also given to two pumping stations that channelled water into the network.

A programme to repair public fountains resulted in an increase in the number of water sources near dwellings. In addition to increasing the quantity and improving the quality of water, this allowed women and children to have safer access to water by reducing their walking distance and hence their exposure to risk (armed violence, sexual violence, etc.).

The return of government services to the district was vital to the sustainability of the system. By working with CAMEP (the water board), the ICRC enabled it to operate without being the target of violence. Other services were subsequently able to resume work.

The aim of this project was to encourage all the parties concerned to work together to set up a water distribution structure that would continue to exist without the ICRC. In the future, the ICRC will continue to work with various partners to consolidate what has been achieved, strengthening the system – particularly the technical aspects of supplying water through all stages from pumping to distribution – and enhancing management by introducing a community structure in an attempt to cover costs.

Restoring the supply of drinking water in Cité Soleil



## Unmanageable urban areas

Sadr City in Iraq is one of the poorest and most densely populated districts of Baghdad (2.5 million inhabitants). Clashes are frequent. The water and sanitation infrastructure needs to be overhauled, repaired or replaced. Power cuts and neglect have badly damaged the effectiveness of pumping stations and water purification plants. A large section of the population has no direct access to safe drinking water. Diseases caused by drinking polluted water and coping with the risk of epidemics put a great deal of strain on the health-care system, which is already overburdened.

The water supply in Sadr City relies on a major pumping station (Abu Nawas) on the Tigris River, which feeds numerous small treatment stations in this district of Baghdad. Abu Nawas was severely damaged during the 2003 conflict and the ICRC carried out large-scale work to repair it.

The organization has also repaired and upgraded small treatment units to ensure adequate supply in terms of quantity and

quality. One of these small stations has provided a safe water supply to major health-care facilities such as Al-Rashad Psychiatric Hospital, which is a 1,200-bed facility.

The ICRC restored pumping capacity and enhanced the water treatment process by reactivating and upgrading chemical treatment units, cleaning sedimentation tanks and repairing or replacing worn-out filtration and electrical components.

The improved quality, the greater reliability and the increase in the volume of water supplied by the plant have reduced the need to deliver water by tanker truck as well as the potential threat to public health. The entire project has been implemented by local entrepreneurs and supervised by the ICRC.

## Poor waste management

Political instability, import restrictions, major damage to the power plant in Gaza, disruption to fuel supplies and late payments are making it difficult for the water distribution and sewage plants in Gaza to function properly. In March 2007 a wastewater reservoir at Beit Lahia containing hundreds of thousands of litres of raw sewage burst its banks. Sewage flooded a Bedouin village, killing five people, injuring 16 others and destroying the homes of thousands. The reservoir was not big enough to absorb the increasing volume of sewage. If the sewage had seeped into the groundwater, the main source of drinking water in the region would probably have been polluted, with disastrous consequences for public health in northern Gaza.

After the wastewater reservoir burst its banks at Beit Lahia in Gaza, the ICRC carried out emergency repairs. Pumping from the main reservoir and re-routing sewage from the neighbouring houses, it was able to deal with the immediate problems. The situation in Gaza was such that the ICRC was not able to continue long-term renovation work.

In 2008, a reservoir containing 50,000 cubic metres of untreated sewage threatened to flood streets and homes in Khan Yunis, a town in southern Gaza with a population of more than 180,000. Alerted by the coastal municipal water utility and the Khan Yunis municipal authorities, and thanks to financial support from the Qatar Red Crescent Society, the ICRC built two new reservoirs a few kilometres from the present lagoon to store sewage and to prevent it from flooding the town and contaminating sources of drinking water.



Emergency pumping system being set up in Beit Lahia to prevent the banks of a wastewater reservoir from bursting

# NATURAL DISASTERS

**Water facilities already damaged by violence have to be safeguarded to cope with the potential consequences of a natural disaster.**

Displacement, famine, the destruction of homes, property and food stocks, and deterioration of essential infrastructure are just some of the consequences of natural disasters. When these disasters occur in areas that are already the scene of conflict or in which they trigger conflict, the risks and the adverse consequences are greater still. For example, the water supply system, refuse management, and the power supply, already undermined by armed warfare, might be unable to contain the damage caused by natural disasters. Moreover, humanitarian aid has to be provided in situations that are often extremely problematic.

The consequences of natural disasters have worsened dramatically in recent decades, in terms of both the number of people affected and the duration of the crises they cause. Everything suggests that this trend is going to become more pronounced in the years ahead.

## Contaminated drinking water

On 5 May 2008, Cyclone Nargis tore across the Irrawaddy delta, in Myanmar, leaving 100,000 dead or missing and affecting some 2.4 million people. Drinking water reservoirs were contaminated by rotting carcasses, human corpses, salt water and debris. An emergency programme made it possible to mitigate the consequences of the disaster in all accessible locations.

Immediately after the cyclone, the Myanmar Red Cross Society launched emergency operations and sent assessment teams to the regions ravaged by the cyclone, while the ICRC provided logistics aid.

In the first week, a cargo plane chartered by the ICRC landed in Yangon with its load of 35 tonnes of equipment and materials needed to provide medical care, supply clean drinking water and remove dead bodies. Subsequently, other air and road

deliveries, which had the cooperation of all the components of the Movement, made it possible to distribute 2,500 tonnes of material (food, jerrycans, etc.) to respond to the emergency.

The ICRC employed local technicians and engineers to help it to carry out its water and sanitation activities. They helped the ICRC to train volunteers from the Myanmar Red Cross in running and maintaining mobile water treatment plants and emptying and

cleaning polluted reservoirs. Other teams of volunteers from the Myanmar Red Cross and the Ministry of Health carried out an assessment of the regions where thousands of people had taken refuge. Some of those regions had been affected by the cyclone while others had not.

Drinking water being produced in Dedaye for victims of Cyclone Nargis



## Acute emergency

On 8 October 2005, the most violent earthquake ever experienced in Pakistan wreaked havoc in the north of the country, killing 73,000 people and leaving more than 3.5 million homeless. Whole villages were wiped out; water and electricity networks, roads, schools and medical facilities were seriously damaged. Many of the victims were in isolated valleys and many access roads had been destroyed.

The ICRC has maintained a presence in Pakistan since 1981, and in Muzaffarabad since 2004. The day after the earthquake, ICRC assessment teams were dispatched to the Neelum and Jhelum valleys in Kashmir in order to determine the immediate priorities (access to health services, emergency shelters and a minimum supply of water and food). Later, the ICRC focused on setting up medium and long-term projects. It continued its work until July 2008.

This work enabled the rehabilitation or construction of more than 100 rural water networks (for the benefit of 80,000 people) as well as irrigation systems for 9,000 farmers; in urban areas, four water purification plants serving more than 100,000 people (Muzaffarabad, Chinari, Hattian and Pattika) were put back into service in cooperation with the water authorities. Vital to the operation was the ability to set priorities, to adjust the response in the emergency phase and in the rehabilitation phase, and to coordinate activities with all parties involved. Initially, the work therefore involved saving lives and, in the second phase, rebuilding public infrastructure and housing so that the local people could resume normal life. Lastly, this process had to be coordinated



Emergency equipment being brought in to repair water supply systems in earthquake-affected villages in Kashmir

with the villagers, the local and national authorities, the humanitarian agencies and the Pakistani army.

In 2008, another earthquake struck the region of Baluchistan in western Pakistan. The ICRC organized the emergency

distribution of material with which to build shelters for people whose homes had been seriously damaged. Because the ICRC was able to take action quickly, the people were able to stay where they were and not lose contact with their socio-economic environment.

## Conflict-affected areas

In recent years, Somalia has had to cope with a rapid succession of natural disasters and intensification of the armed conflict, as well as an increase in the cost of living. These are all factors in the deterioration of living conditions in the country.

Several rainy seasons during which rainfall was well below average prompted the ICRC to launch two operations in 2008 to alleviate the severe shortage of water in central and southern Somalia by distributing drinking water by tanker truck. About half a million cattle farmers were supplied with a total of 277 million litres of water.

The ICRC also continued its work to improve underground water sources (wells and boreholes) and surface water storage facilities (rainwater catchments). As a result, some 180,000 people continued to have access to safe water.

To boost self-sufficiency among the farming population along the Shebele and Juba rivers, the ICRC supplied 67 pumps and repaired and upgraded four irrigation sluice gates. This work has secured agricultural production on some 1,300 hectares of farmland.

# THE ICRC, WATER AND THE ENVIRONMENT

## Ensuring sustainable and environment-friendly operations and presence in the field.

The ICRC and its Water and Habitat Unit make every effort to mitigate the impact of the organization's activities and its presence in the field (housing, energy consumption and use of resources) on the ecosystem and the environment.

Since it was established in 1983, the Water and Habitat Unit has sought to promote respect for the environment and to employ tools and techniques that are not harmful to the environment. Its engineers are encouraged to take account of environmental aspects in their projects as long as assistance for victims is not delayed or compromised. In emergencies, the Unit's engineers always try to strike a balance between the immediate needs of victims and the medium and long-term consequences of their activities.

In the post-emergency phase of a crisis, some "responsible" projects may bring about positive environmental change. Wherever possible, the ICRC tries to boost the interest and motivation of its local partners to ensure the sustainability of those environmental projects.

## Civilians

During the war with Ethiopia in 1998, many water supply systems in the mountainous region of Debu and Gash Barka in Eritrea were destroyed. With the participation of the local communities, the ICRC team replaced the old diesel-driven pumps – which were not only expensive but also affected by irregular deliveries of diesel – with pumping systems driven by solar energy. The solar energy approach was practicable in that context because a number of favourable factors converged: the total cessation of fighting, small scattered villages, organized communities, no risk of vandalism, well-structured water authorities that were capable of sustaining their work, previous experience of solar energy and a solar system expert in the capital. Without these prerequisites, this type of technological approach would be impossible to sustain. The technical aspects of the concept have now been mastered and the lightweight equipment can be installed quickly and has proved reliable even in extreme conditions (heat, dust, sand).

Also in Eritrea, the ICRC launched a pilot project to teach women in the camps for displaced persons to build better ovens that use up to 50% less wood. For that project, the ICRC worked with a research institution and the authorities. The raised ovens enable the women to do their cooking standing up. Designed by the Ministries of Energy and Agriculture and the association of Eritrean women, the ovens are fitted with a smoke-extraction chimney and thus make a major contribution to reducing respiratory diseases. Women who had gained experience of using these ovens were commissioned by the regional authorities to train other displaced women; the ICRC paid them for this work.

Some of the materials needed to build the ovens, such as clay and stones, were available close to the camp. Other materials were provided by the ICRC.

The banks of the Murhundu River in the Democratic Republic of the Congo were eroding and threatening the main source of water for Bukavu, the town situated downriver. The ICRC persuaded the people to plant trees rather than crops on the river banks to counteract erosion and water turbidity, thus reducing the need to use chemicals in the water treatment process.

## Detainees

In Nepal, the ICRC, in conjunction with the Prison Management Department, carried out work to renovate Kaski District Jail in Pokhara. The renovation work included installing an environmentally friendly biogas system, carried out thanks to the expertise of *Biogas Support Programme – Nepal*. The system is making a considerable improvement to sanitation conditions in and around the jail and is reducing kerosene consumption.

Despite deforestation and desertification, wood is still the main source of energy in Ethiopia. This created an urgent need to find alternative resources. Studies showed that, in some regions, it was eight times less expensive to use kerosene than wood. The ICRC therefore decided to install kerosene cookers in the prisons in Ethiopia for the benefit of 40,000 detainees. This saves 100,000 trees each year. All the equipment is produced locally, can be easily replicated and is designed to last. If there were to be a shift to other sources of energy such as gas, all that would have to be changed is the burner.

Pumping and distribution system in Eritrea powered exclusively by solar energy



**ARTICLE 35, para. 3**  
**Protocol I additional to the Geneva**  
**Conventions of 1949**

It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.

**ARTICLE 55, para. 1**  
**Protocol I additional to the Geneva**  
**Conventions of 1949**

Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.



## MISSION

The International Committee of the Red Cross (ICRC) is an impartial, neutral and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of armed conflict and other situations of violence and to provide them with assistance. The ICRC also endeavours to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles. Established in 1863, the ICRC is at the origin of the Geneva Conventions and the International Red Cross and Red Crescent Movement. It directs and coordinates the international activities conducted by the Movement in armed conflicts and other situations of violence.



ICRC