



Behind the Global Monitoring Plan

In conversation about monitoring
persistent organic pollutants (POPs)

**UNEP/GEF Projects on Continuing Regional Support for the
POPs Global Monitoring under the Stockholm Convention**





Stories

told by the people
behind the Global Monitoring
Plan (GMP) for persistent
organic pollutants (POPs)

What are we monitoring?

The **Global Monitoring Plan (GMP)** monitors the presence of **persistent organic pollutants (POPs)** in the environment and humans. POPs are hazardous chemicals that threaten human health and the planet's ecosystems. They are extremely toxic to humans and wildlife, remain intact for exceptionally long periods of time, accumulate in the food chain and can travel long distances to the most remote places of our planet, such as the Arctic.

Why are we monitoring?

Monitoring POPs is essential to assess whether the Stockholm Convention remains an effective tool to protect human health and the environment from POPs. The data generated by the GMP shows to what degree people and the environment have been exposed to POPs and allows policy makers to make informed decisions and take action where needed.

Where are we monitoring?

UNEP implements projects that contribute to monitoring POPs and the implementation of the Stockholm Convention. Monitoring happens globally in all UN regions and capacity building support is provided in Latin America and the Caribbean, Africa, Asia and the Pacific.



Samoa

UN region: Asia and Pacific Group

Capital city: Apia

Population: 197 thousand (UN DESA 2019)

Did you know?

S.A.M.O.A. also stands for ‘SIDS Accelerated Modalities of Action’ and is part of the approach to achieve the Sustainable Development Goals.



“The Global Monitoring Plan (GMP) has enabled Samoa to take part in scientific research at a global level,” says Afele Faiilagi, national coordinator of the GMP. “Now we have locally trained staff and the necessary equipment that enables us to participate in the research. Both are crucial when we look at future plans.”

“We have chosen a site in Samoa’s mountainous area for air sampling,” says Faiilagi. “The direction of the wind was one of the things we took into account for choosing a suitable site. Our water sampling site is located in the lower part of one of our major rivers, the Vaisigano river.”

Women who are breastfeeding their first-born child are able to participate in the human milk sampling. “The Ministry of Health and the Ministry of Women, Community and Social Development have assisted us in setting up the human milk sampling,” says Faiilagi. “We decided to work with female mayors to select women who would qualify in the villages. The collection of human milk has two major purposes. While collecting the milk samples we also aim to raise awareness about what persistent organic pollutants (POPs) are and their possible presence in our environment.”

“Our future generation is our main motivation for participating in the GMP,” says Faiilagi. “The GMP is an opportunity for Samoa to assess human and environmental exposure to POPs. The data that we acquire enables the observation of trends, assesses risks, points out the priorities and is taken into account for our future planning. Without the GMP, Samoa wouldn’t be at this level of understanding and it would have missed out.”

Samoa works closely together with other Pacific countries and translates these collaborations into national programs. “In the Pacific, we all face the same kind of issues,” adds Faiilagi.

“We are one global family. POPs are part of a global agenda. Our little bit of paradise in the Pacific is part of the global fight for a healthy planet and healthy people.”

“Women who are breast feeding their first-born are able to participate in the milk sampling. We select female mayors to work with the women”

Afele Faiilagi

Samoa





Egypt

UN region: African Group

Capital city: Cairo

Population: 100,4 million
(UN DESA 2019)

Did you know?

Chemical pollution can increase pressure on coral reefs. The Red Sea in Egypt is known for its many coral reefs.



“At the time the Stockholm Convention entered into force, we did not have a clear overview of the situation regarding hazardous chemicals in our country. After a first field visit to Shoubra El Khima, a large industrial area in Egypt where among others smelters, petro-chemicals and fertilizers were found, we started to understand the issues we had,” explains Elham Refaat Abdel Aziz, national coordinator of the Global Monitoring Plan (GMP).

“Some people were using PCB oil to make their hair smell nice, remove pain or get a better skin. We started to question how these chemicals are affecting our people,” says Abdel Aziz.

“The GMP has had a positive effect with regard to accrediting our laboratory, Residue, for environmental analysis,” says Abdel Aziz. “Before the GMP, the laboratory was only carrying out food analysis. Today, the laboratory is accredited to analyse food, meat, milk, eggs, pesticides, heavy metals, and persistent organic pollutants (POPs).”

“Personally, I have always believed that the human milk component of the GMP is very important,” continues Abdel Aziz. “How do hazardous chemicals affect our mothers in

Egypt? And how can we raise awareness at the same time? We see the human milk sampling since 2010 as one of the main successes of our participation in the GMP.”

“Air samples are taken in the area around the city of Alexandria. This area was chosen because it is an industrial area. Yet, we were told by experts from the GMP that the area can be industrial, but not too polluted in order to obtain representable data. Lake Esmalia is a major source for drinking water in Egypt, and this was therefore chosen,” says Abdel Aziz.

Thanks to the GMP Egypt has reliable data on the presence of POPs in the country. “In one case, we took note of very high levels of hazardous chemicals in Egypt, and thanks to the GMP data we were able to correct this,” says Abdel Aziz.

“In the future we hope to accredit more laboratories and further specialize in POPs analysis. Also, we aim to integrate this project with other Global Environment Facility (GEF) and World Bank projects concerning chemicals management in Egypt. The GMP is a global effort, and this makes it a very special project,” concludes Abdel Aziz.

“How do hazardous
chemicals affect
our mothers in Egypt?”

Elham Refaat Abdel

Aziz

Egypt





Japan

UN region: Asia and the Pacific Group

Capital city: Tokyo

Population: 126.9 million (UN DESA 2019)

Did you know?

Throughout much of the 20th century the chemical industry was based largely in Europe, North America and Japan.



“Japan is a pioneer when it comes to monitoring of hazardous chemicals in the environment,” says Tetsuro Fujii, representative of Japan. “The Japanese Government initiated environmental monitoring long before the Stockholm Convention came into force in 2004. Environmental surveillance of chemicals initiated in 1974, and biological monitoring of selected chemicals that were found in the surveillance were added in 1978. These selected chemicals were characterized by persistent, bioaccumulative and toxic properties and included persistent organic pollutants (POPs).”

“This project is very important to Japan as the country has a history of severe pollution,” says Fujii. “Since its beginning 15 years ago, Japan has been very supportive of the GMP.” **Nowadays,** air, water, sediment and biota samples are collected at different locations with support of dozens of local governmental institutes all over Japan, and selected companies analyze POPs in these samples. “Economic factors are involved as well,” says Fujii. “Companies can compete and can offer lower prices. Every year, data is submitted by the laboratories and experts from the overseeing committee visit the laboratories to make sure the data quality fulfills the standards.”

“Regional activities are essential to the monitoring of POPs,” says Fujii, “and we pay specific attention to capacity building and the transfer of technical knowledge. At regional meetings technical and political officers from the different governments come together, as well as experts. Currently, 11 East Asian countries are involved in the regional program.”

Japan has, together with South Korea, been leading the regional activities in East Asia. Currently, the possibility of having a core lab in the region is being explored. Such a laboratory could play a leading role together with Japan and South-Korea. Another activity, led by South-Korea, is the development of a database for the subregion that would add to the currently existing one under the Stockholm Convention. Japan aims to coordinate and harmonize regional activities as much as possible with the GMP.

Fujii concludes that obtaining data is important in order to set priorities and that sustainability is essential. “We always keep in mind this very fitting quote by Katarina Magulova from the Basel, Rotterdam and Stockholm Conventions Secretariat: we are taking small steps, but in the right direction.”

“This project is very important for Japan as it has a history of severe pollution”

Tetsuro Fujii

Japan





Argentina

UN region: Latin

American and Caribbean
Group

Capital city: Buenos Aires

Population: 44.8 million (UN
DESA 2019)

Did you know?

Argentina has many sites on the UNESCO World Heritage List such as Los Glaciares National Park in Patagonia.

“We have seen major improvements since our participation in the Global Monitoring Plan (GMP). Today, we have the capacity and we look very positively to the future,” says Leila Devia, national coordinator of the GMP in Argentina. “We are able to take advantage of many more opportunities than before.”

The National Institute of Industrial Technology (INTI) oversees the GMP project in Argentina. The institute is the reference laboratory for national metrological data as well as for PCB, short for polychlorinated biphenyls, one of the persistent organic pollutants (POPs) under the Stockholm Convention. “The capacity of the institute helps assure the quality and credibility that is needed for the GMP,” says Devia. “The laboratory has a leading role within the country and within the region as well. Some of our experts frequently work in other Latin American countries such as Bolivia and Ecuador.”

The National Institute of Industrial Technology closely collaborates with other laboratories in the country. “The GMP project has advanced our collaboration with laboratories in other parts of Argentina. We are a federal country and it is therefore important to know the laboratory’s capacities in the provinces. In

total, we have around 10 laboratories in our national network. In addition, we have a roster of national, regional and international experts at our availability. This has proven to be very useful,” says Devia.

“The results that we obtain from the GMP project are of key importance for policymaking,” explains Devia. “This has been one of the main benefits of taking part in this project. Currently, some of our national budget has been allocated for environmental monitoring.”

“Looking at the future, it could be useful to identify expert laboratories in the region. In this way, samples can be analysed by the best qualified laboratory in the region,” says Devia.

“The results that we obtain from the Global Monitoring Plan are of key importance for policy-making”

Leila Devia

Argentina





Palau

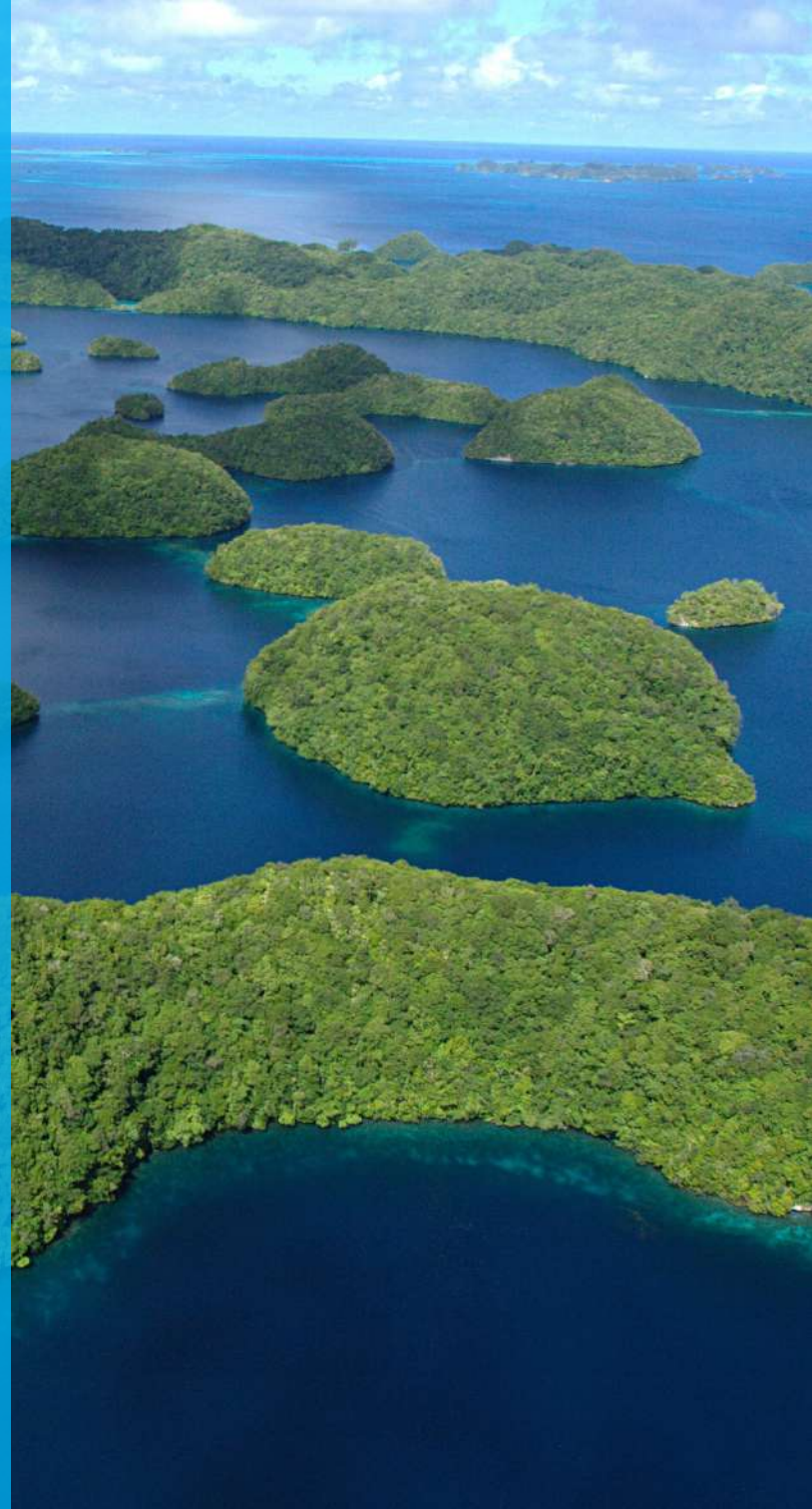
UN region: Asia and Pacific Group

Capital city: Ngerulmud

Population: 18 thousand (UN DESA 2019)

Did you know?

Palau is an archipelago of more than 500 islands.



“In Palau, we rely heavily on our environment,” says Roxanne Blesam, national coordinator of the Global Monitoring Plan (GMP) in Palau. “The ocean in particular plays a key role in our daily life. We rely on a healthy environment for our food and a healthy environment is of essential importance for our economy.”

“Our goal for the GMP is to evaluate the presence of persistent organic pollutants (POPs) in our environment and protect our people and the environment from POPs. As a Small Island Developing State, we see POPs present in our environment even though we have not produced them. Limited resources add on to the threat,” says Blesam. “How did these POPs end up in our waters? And how can we translate the data into policy? Eventually, we aim to prohibit these POPs from entering our environment.”

Being a small island, Palau does not have the capacity to measure POPs in a laboratory of their own. The air, water and human milk samples are collected and prepared in Palau after which they are sent to the GMP expert laboratory in Germany. “The distance that the samples have to travel can complicate a successful transfer of samples and is a real challenge,” says Blesam.

Palau pays specific attention to its marine environment within the GMP. “In addition to air, water and human milk samples, we take samples from marine species such as tuna. By looking at different marine species we hope to be able to see if POPs have gone into the food chain,” explains Blesam.

“Pollution is a regional as well as a global issue. Issues concerning POPs, marine litter and transboundary waste are not limited to boundaries. It is an important question in the region to ask how these issues affect our fisheries,” says Blesam. “A regional strategy would be key in developing a better understanding and more effective approach.”

“The key driving point is to protect the future generation from harmful environmental effects,” says Blesam. She adds that past mistakes should not be replicated. “In our culture we strongly believe in doing good for the many, for our society. The GMP is a very important project that serves us all,” she concludes.

“As a Small Island
Developing State,
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produced them”

Roxanne Blesam

Palau





Zambia

UN region: African Group

Capital city: Lusaka

Population: 17.9 million (UN DESA 2019)

Did you know?

DDT, one of the Persistent Organic Pollutants (POPs) under the Stockholm Convention, has long been used in Zambia and other countries to fight malaria.



“By participating in the Global Monitoring Plan (GMP), we are able to get a better understanding of the Persistent Organic Pollutants (POPs) present in the country,” says Christopher Kanema, national coordinator of the GMP in Zambia.

“Air, water and human milk as the core matrices of the GMP are the main matrices of importance,” says Kanema. “For each matrix, different specialized stakeholders are involved. The institute works together with the National Airport Cooperation to conduct the air sampling. The Ministry of Local Government and the University of Zambia are assisting in collecting water samples. We take our water samples from one of the major rivers on the African continent, the Zambezi,” says Kanema.

The School of Public Health and the Ministry of Health have been essential in assisting human milk sampling. “Regional distribution has been a very important factor,” says Kanema. “We contacted the provincial centers in the country. Setting up the milk sampling routine proved to be a lengthy process, but now that everything has been approved, things are going more smoothly. This has been a very important lesson for us,” says Kanema.

The laboratory staff in Lusaka has received training from international experts. “During the training we learned how we could sample and analyse POPs in different matrices, such as fish, water and sediment,” explains Kanema. “At a certain point we discovered that a piece of equipment for analysis was not working. We had to contact another laboratory to borrow a pump.” In total 10 laboratory staff received training.

“Looking at the future, it would be important to identify accredited laboratories in the region. By doing so, it would be possible to identify a regional reference laboratory. Collaboration at the regional level is something very important and something that can be improved,” says Kanema.

The key to making the measuring of POPs more sustainable? According to Kanema, mainstreaming the GMP in the national plan would be a very important step in the right direction.

“We take our water samples from one of the major rivers on the African continent, the Zambezi”

Christopher Kanema

Zambia





Indonesia

UN region: Asia and the Pacific Group

Capital city: Jakarta

Population: 270,6 million (UN DESA 2019)

Did you know?

Indonesia is among the 5 most populous countries in the world.



“In 2017, we had our first Global Monitoring Plan (GMP) milestone,” says Anton Purnomo, national coordinator of the GMP in Indonesia. “We installed our first instrument to measure hazardous chemicals in air, the PUF which is short for Polyurethane Foam. We placed the PUF on the compound of the meteorological agency. In this way, the data we collect corresponds to our meteorological data. This might be very useful in the future.”

The Ministry of Environment and Forestry coordinates the GMP with support of the Basel Convention Regional Center (BCRC). “The Indonesian government has been focusing a lot on mercury. Recently, one of our laboratories has become the Center of Excellence of Mercury . Although mercury is part of the Minamata Convention, these developments may also present an opportunity for POPs,” says Purnomo.

“The water sampling sites are all located on the island of Java, including in the capital city, Jakarta. In addition, we have selected various national matrices such as sediment, soil and fish. The fish has proved to be the most difficult of these, as it gets rotten very fast,” says Purnomo. “After successful collection, we send the fish samples to the coordinating lab-

oratory for national matrices in Amsterdam.” Currently, Indonesia is not participating in human milk sampling.

“As a regional center, we have the responsibility to involve other countries in the region. We have been reaching out to Laos, Myanmar and Malaysia and work closely together with Singapore,” says Purnomo. Yet, he believes that regional synergies could be increased. “The interlaboratory assessment is a good test to assess the level of the laboratories in the region.”

Training is key in order to keep monitoring sustainable, according to Purnomo. “Once our national staff is well trained, we will be able to sustain our monitoring. As part of the GMP we have also received some essential equipment for our laboratory which has improved our capacity.”

With regard to budget, Purnomo says that recognition of the National Implementation Plan (NIP) is very important. “We are trying to get the NIP signed by the President. Such high-level recognition would make it easier to knock the door,” says Purnomo.

“Training is key in order to
keep monitoring
sustainable”

Anton Purnomo

Indonesia





Antigua & Barbuda

UN region: Latin

American and Caribbean
Group

Capital city: St. John's

Population: 97 thousand
(UN DESA 2019)

Did you know?

The new Global Environment Facility (GEF) ISLANDS project will support island states across the Caribbean, the Pacific and the Indian Ocean to manage the growing impacts of chemicals and wastes on their unique environments.

“The biennial inter-laboratory assessment of the Global Monitoring Plan (GMP) really sets a benchmark,” says Linroy Christian, national coordinator of the GMP in Antigua and Barbuda. The inter-laboratory assessment is a key element for quality control and quality assurance and has been considered as one of the largest such programmes on persistent organic pollutants (POPs) analysis.

Another main benefit of the GMP for Antigua and Barbuda has been the technical capacity building component. “We received excellent training from the GMP expert laboratory in Barcelona. What was good about the training is that it was very practical. At the training you learn things that you cannot find in a manual,” says Christian.

“Antigua and Barbuda is centrally located in the Caribbean. Yet, there are geographical data gaps in the sub-region. Barbados has just joined the GMP, yet other countries such as Guyana and Trinidad and Tobago are important countries in the region that are not participating yet,” explains Christian.

Antigua and Barbuda has been working closely together with Jamaica and receiving guidance from the Technological Laborato-

ry of Uruguay (LATU). “An important regional player is the University of the West Indies, which has campuses in Jamaica, Barbados and Trinidad and Tobago, with a fourth campus to be established in Antigua and Barbuda.” Christian believes, however, that the scientific community and awareness in the region could be better engaged.

“In Antigua and Barbuda, we look at chemicals management as a whole,” says Christian. “This includes the Basel, Rotterdam and Stockholm Conventions and also the Minamata Convention. We have crafted a new piece of legislation geared towards the integrated management of chemicals.”

“The GMP is an important aspect of the Effectiveness Evaluation of the Stockholm Convention,” explains Christian. The objective of the effectiveness evaluation is assessing whether the Stockholm Convention is an effective tool to protect human health and the environment from persistent organic pollutants.

“Finally, it is worth mentioning that the trainings in Barcelona were a very unique cultural experience and exchange in addition to the learning process,” says Christian.

“In Antigua and Barbuda
we look at chemicals
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Linroy Christian

Antigua and Barbuda





Thailand

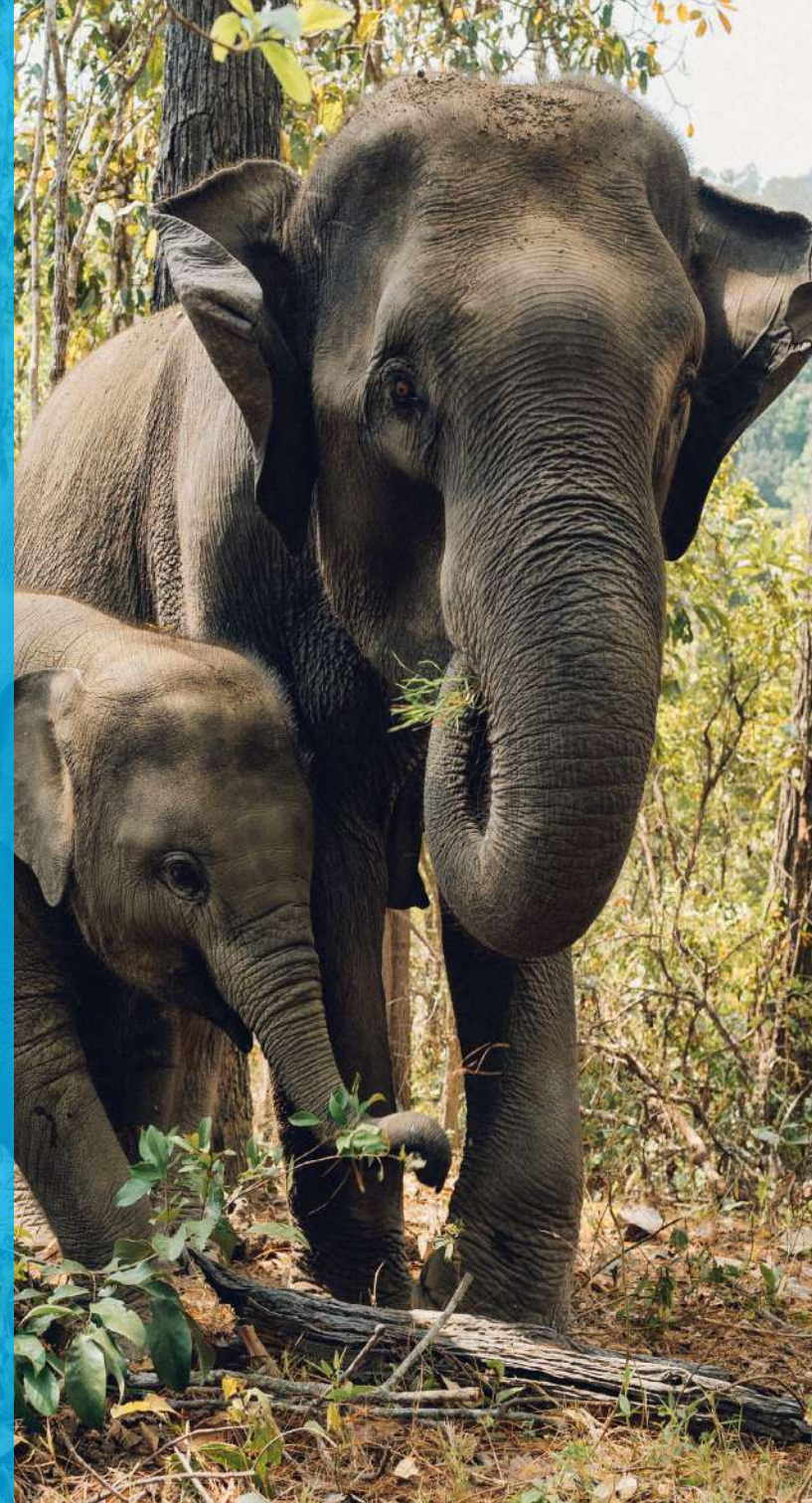
UN region: Asia and Pacific Group

Capital city: Bangkok

Population: 69,6 million (UN DESA 2019)

Did you know?

Thailand is home to some very unique species listed as endangered on the IUCN red list such as the tiger and the Asian elephant.



“We see the capacity building component as probably the most important element of the Global Monitoring Plan (GMP),” says Teeraporn Wiriwutikorn, national coordinator of the GMP in Thailand. “Our aim is to have more data on the presence of persistent organic pollutants (POPs) in our environment and expand the POPs measuring network in Thailand and the region.”

“No laboratory can do all types of analysis,” explains Wiriwutikorn. “Each laboratory has its own specialisation.” Thailand is currently conducting air and human milk sampling. In addition, different national matrices are being analysed, such as beef, chicken egg, duck and water from a water treatment plant.

To date, 60 human milk samples have been collected under the GMP. “In order to collect the samples, we work with the Health Department of the government and the Thammasart University, which coordinates the actual human milk sampling,” explains Wiriwutikorn. “We have volunteers at our availability in different regions in Thailand and communicate with them via teleconference since distance is an issue. The video tutorials provided by the GMP have proved to be very helpful,” she adds.

“Our participation in the interlaboratory assessment allows us to compare our national data with the standard,” says Wiriwutikorn. “In this way, we can assess the quality of our data and our capacity.”

“As part of the capacity building training, we are able to receive training in the analysis of new POPs. PFOS for example, short for perfluorooctanesulfonic acid, is a newly added POP under the Stockholm Convention that is of concern for our water quality,” she says.

“The guidance of experts is essential,” says Wiriwutikorn. “We just have organized a meeting with Japanese experts and learned how they established the plan and network in Japan. This was very successful, and we hope to repeat these initiatives in the future with other countries as well.”

“In the future we would like to focus on some local issues within the GMP. We have serious air quality issues in Thailand, caused by open burning in winter or haze pollution from neighboring countries. Open burning is a source of POPs. We can find better solutions to these kinds of issues if we obtain more data,” concludes Wiriwutikorn.

“We have serious air quality issues in Thailand, caused by open burning in winter or haze pollution from neighboring countries”

Teeraporn Wiriwutikorn

Thailand





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