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Citation	北海道大学環境健康科学研究教育センター主催 WHO環境化学物質による健康障害の予防に関する研究協力センター指定3周年記念 市民講演会 「SDGsを考える ～暮らし・教育・健康～」 2018年10月17日(水)開催 (北海道大学百年記念会館大会議室)
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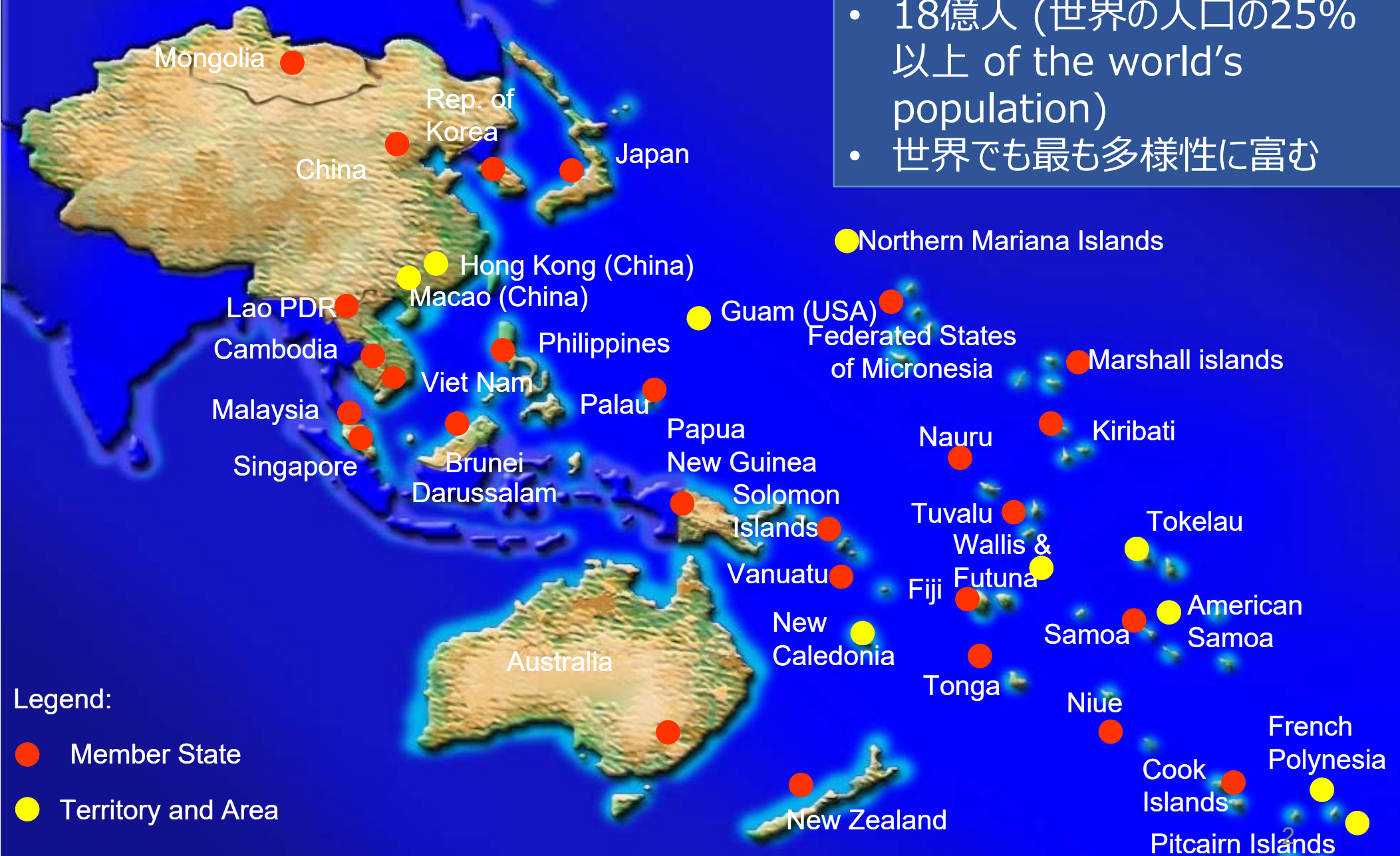
# WHO 研究協力センター 活動報告

- WHOCC for Environmental Health and Prevention of Chemical Hazards (JPN-91) **環境化学物質による健康障害の予防に関するWHOCC**
- WCCセンター長：岸 玲子（特別招へい教授）
- 施設：北海道大学環境健康科学研究教育センター
- 認証日：2015年4月22日



# WHO 西太平洋地域

- 37の国と地域
- 18億人 (世界の人口の25%以上 of the world's population)
- 世界でも最も多様性に富む



# 次期（2019年1月～）WHO西太平洋地域事務局長に 葛西健氏（現WHO西太平洋事務局事業統括部長）が選出！



# WHO Collaborating Centre (WHO研究協力センター)



- WHOCCは、保健分野の研究を通じてWHOの活動を支える施設
- 世界には約700のWHOCC
- WPRO地域には約175施設
- 特に、WPRO地域における Sustainable Development Goals (SDGs)の達成は WHOCCとしての重要なミッションの一つ



**WHO Collaborating Centre  
for Environmental Health and Prevention of Chemical Hazards**

- **TOR (Term of Reference) 1**

化学物質ばく露によるハザードや健康障害予防に関する調査および研究能力の向上においてWHOを支援

- **TOR 2**

化学物質ばく露と健康に関する研究成果や科学的知見をガイドライン、マニュアル、あるいは研修モジュール等のWHO資料に生かす

- **TOR 3**

特に脆弱な人々の化学物質ばく露によるハザードや健康障害予防に関する研修や知識向上にむけてWHOを支援

# 活動 1 : 知識や能力の向上

- ① 世界各国からの研究者や大学院生の受け入れ  
(エチオピア、台湾、タイ、フィリピンなど)
- ② 国際会議での講演、シンポジウムの主催による啓発活動  
(2017年は本学人獣共通感染症リサーチセンターと国際シンポジウムを開催)



## 活動2：ネットワークの構築、参画

### ① WHO関連会議への参加

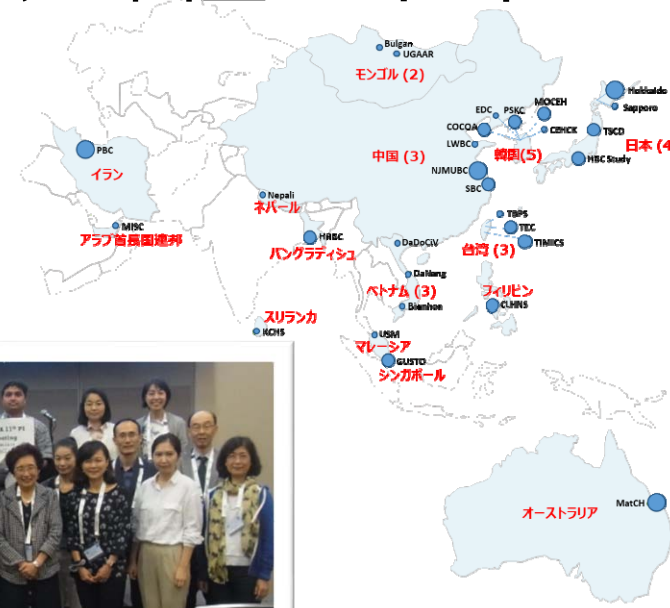
- 2018年4月 第2回WCC連携会議（東京）
- 2018年11月 The Second Regional Forum of WHO CCs in Western Pacific（ベトナム ホーチミン）

### ② WHOCC Children's Environmental Health Network： WHO本部に加えて、世界各国のWHOCCが参画、電話会議等で 情報共有

### ③ Birth Cohort Consortium of Asia: アジアの出生コホートコ ンソーシアム、現在16か国31コホートが参加



**BiCCA**  
Birth Cohort Consortium of Asia





# 活動 3 : 科学的知見をWHOの活動に生かす - 1

## 化学物質と健康リスクに関するリーフレットを作成

WHO WPROと協働で特にアジアに着目したデータ (1冊目は Dioxins and Our Health)

[http://www.wpro.who.int/health\\_environment/en/](http://www.wpro.who.int/health_environment/en/)

### Dioxins and our health



#### What are dioxins ?

Dioxins are a group of highly toxic chemical compounds that are called persistent organic pollutants (POPs). They are found throughout the world in the environment.

Dioxins mainly build up in the fatty tissue of animals, and the higher an animal is in the food chain, the higher the concentration of dioxins.

Of the known dioxin-related compounds, about 30 have significant toxicity. TCDD is the most toxic.

#### How are dioxins produced ?

Most dioxins are unwanted by-products of manufacturing processes such as smelting, the chlorine bleaching of paper pulp, and the production of some herbicides and pesticides. One of the major causes of the release of dioxins into the environment is incomplete burning of solid waste and hospital waste by uncontrolled waste incinerators. Dioxins can also result from volcanic eruptions, forest fires and other natural processes. Technologies have been developed for controlled waste incineration with low dioxin emissions.

#### Where can we find dioxins ?

Long-term storage and improper disposal of PCB-based waste may cause the release of dioxins into the environment.

The highest levels of dioxins are found in soil, sediment and food—especially dairy products, meat, fish and shellfish. Vary low levels are found in plants, water and air.

#### What should be done to reduce the production of dioxins ?

Proper incineration of contaminated material is currently the best method for preventing and controlling exposure to dioxins. It can also destroy PCB-based waste oils. The incineration process requires high temperatures above 850°C. Even higher temperatures of 1000°C or more are required to destroy large amounts of contaminated material.


The disposal of electrical equipment may also release PCBs and PCDF contaminants. To reduce human exposure, it is crucial to identify and safely dispose of material containing or likely to generate dioxins and dioxin-like substances such as electrical equipment.



#### What can we do to reduce the risk of exposure?

Experts have established a provisional tolerable monthly intake (PTMI) of 70 picograms per kilogram of body weight per month. Over a lifetime, this is the amount of dioxins that can be ingested without causing negative health effects.

A balanced diet that includes plenty of fruits, vegetables and cereals can help prevent too much exposure to dioxins from a single source. This is probably most important for girls and young women because it can reduce the exposure of their unborn babies and breastfed infants when they become mothers later on in life.

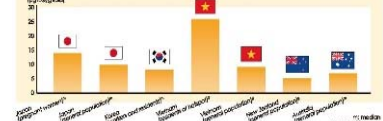


### Dioxins in Asia

#### Concentrations in human blood

More than 90% of human exposure is through food—especially fish and shellfish, meat and dairy products.

Concentrations in human blood samples in Asian countries and Pacific Islands are shown below. Residents living in hot spots where incidents occurred in the past continue to have higher levels of dioxins. The general population among the countries shown was found to have similar dioxin levels.



Concentrations of PCDD/PCDF in human blood samples in Asian countries from 2001 to 2012

(The data was obtained from the published articles in the reference section and may not be representative of whole country)

#### In the past


During the Vietnam War from 1961 to 1972, herbicides contaminated with TCDD—the most toxic congener of dioxin—were sprayed in Southern Vietnam. Military caches formerly used for storing herbicides are referred to as TCDD contamination hot spots because of the extremely high levels of TCDD found in soil samples collected from them. Yucho and Yu-cheng are “oil diseases” caused by the consumption of contaminated rice oil in western Japan in 1968 and in Taiwan from 1978 to 1979.

#### Current issues

According to the Global E-waste Monitor, 40.7% of the world’s e-waste (i.e., electrical and electronic equipment and its parts that have been discarded by the owner as waste) is generated in Asian countries.

Uncontrolled combustion and thermal processing of e-waste can release complex mixtures of dioxin-related compounds.

Informal e-waste recycling sites in developing Asian countries are severely contaminated by dioxin-related compounds. Residents living near such sites in Asia are thought to be exposed to dioxin-related compounds through the ingestion of soil/dust and contact with the skin, as well as by eating food produced nearby. Comprehensive assessment of dioxin-related compounds from e-waste at informal recycling sites in Asian countries must be carried out to effectively determine human and environmental exposure risks.




#### What is known about health effects ?

Dioxins are highly toxic and can cause reproductive and developmental problems, damage the immune system, interfere with hormones and cause cancer.

Short-term exposure to high levels of dioxins may result in skin lesions, such as chloracne and patchy darkening of the skin, and altered liver function. Long-term exposure is linked to impairment of the immune system, the developing nervous system, the endocrine system and reproductive functions.

#### Prevention for the next generation

Developing fetuses are the most sensitive to dioxin exposure. Newborns, with their rapidly developing organ systems, may also be more vulnerable to some effects. Therefore, with accidental high-dose exposure and relatively low-level exposure have been linked to low birth weight, delays and defects in neurodevelopment, and endocrine disrupting properties. Although some fish may be contaminated, most are safe to eat. Pay attention to local fish advisories/guidance and improve methods used to clean and cook fish to remove some of the fat. It is also important to keep children away from waste dump sites, e-waste recycling sites and other contaminated areas.




#### References

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**HOKKAIDO UNIVERSITY**  
 Center for Environmental and Health Sciences

WHO Collaborating Centre for Environmental Health and Prevention of Chemical Hazards

# 活動 3: 科学的知見をWHOの活動に生かす – 2

## WHO研修モジュール「WHO training package for the health sector」のアップデートと和訳

- 環境と子どもの健康に関する医療従事者向けの研修モジュール
- 全部で30のモジュールがWHOから提供されている
- 3課題（①なぜこども？ ②子どもは小さな大人ではない、③子どもと化学物質）を和訳済み、今後随時追加予定  
[www.cehs.hokudai.ac.jp/whocc/whomaterial/](http://www.cehs.hokudai.ac.jp/whocc/whomaterial/)


**Children and chemicals**

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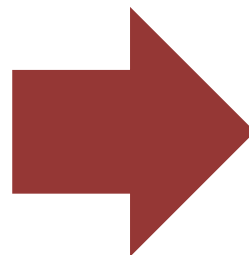
**ACUTE POISONINGS**

*According to Poisons Centres :*

- ❖ Up to 50% to 70% of the calls are about children exposed to chemicals or actually poisoned
- ❖ Number of poisoning cases is underestimated
- ❖ Cases of exposure are mostly acute and accidental
- ❖ The majority are between 1 & 4 years old
- ❖ Boys are more affected
- ❖ The outcome is usually favourable
- ❖ Mortality is usually low



U.S. Environmental Protection Agency 26




**Children and chemicals**

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**急性中毒**

毒物センターによると:

- ❖ かかってくる電話の50%～70%までが、化学薬品に暴露された、または実際中毒を起こしたというものである。
- ❖ 中毒の件数は過小評価されている。
- ❖ 暴露のケースのほとんどは、急性かつ偶発的なものである。
- ❖ 大多数は1～4歳である。
- ❖ 男の子の方が影響を受けやすい。
- ❖ 予後は通常良好である。
- ❖ 死亡率は通常低い。



U.S. Environmental Protection Agency 13

## 活動 4: 研修やトレーニングの実施

- 環境化学物質と健康に関するソウル大学との共同講義
- 「社会と健康」ディプロマプログラムの提供



# SUSTAINABLE DEVELOPMENT GOALS

世界を変えるための17の目標



UN（国連）はMillennium Development Goals（2000）  
⇒ Sustainable DGs に改訂（2015）  
2030年までに17の領域169の項目が達成目標

# HEALTH IN THE SDG ERA



World Health Organization

[WWW.WHO.INT/SDGS](http://WWW.WHO.INT/SDGS)



# WHOCCの活動により複数の達成目標を同時に解決！

化学物質ばく露によるハザードや健康障害予防に関する

- ① 知識・研究技術の向上
- ② 科学的知見の提供
- ③ 研修やトレーニング



# ご清聴ありがとうございました

