

Introduction of MOCHE STUDY



MOthers and Children's Health and Environment
(MOCHE): a multi-center longitudinal study in Korea

MOCHE means mother's body in Korean.

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Introduction

It cannot be too emphasized that environment and health of our children from birth to adolescence need continuous care for the sustainable society....



Background

- Children's disease and developmental disorder potentially associated with environmental hazards, such as allergy and asthma, atopic dermatitis, and neurobehavioral disorder, etc., is a great public health concern in worldwide including Korea.



Background

- To assess the environmental exposures in mothers and their babies and its health effects, a multi-center birth cohort study, **MOthers and Children's Health and Environment (MOCHE) program** has been initiated in Korea since 2006 and plans to enroll participants continuously until 2010.



- Supported by Korean Ministry of Environment and supervised by medical specialists and university professors, our center conducts research on national policies for environmental health.



Aim of our study

- The goal of the MOCHE is to evaluate environmental risk factors (chemical, biological, physical, and psychosocial) for susceptible groups including mothers and infants, and to provide information for the health, development, and well-being of children in the future.



5 Years Timeline of action plan

- 2006 (First Year): Launching
- 2007-9 (Second-Fourth Year): Continuous construction and management
- 2010 (Fifth Year): Evaluation and Suggestion of Environmental Health Policy for pregnant women and children



2006 (First Year): Launching

- Establishment and construction of cohort of mothers, infants and children
- Research on exposure to environmental pollutants in mothers and children
- Survey on environmental factors related with air pollution and heavy metals
- Development of biomarkers or indicators of environmental exposure
- Analysis of selected biomarkers or indicators of environmental exposure in the first year

2007-9 (Second-Fourth Year): Continuous construction and management

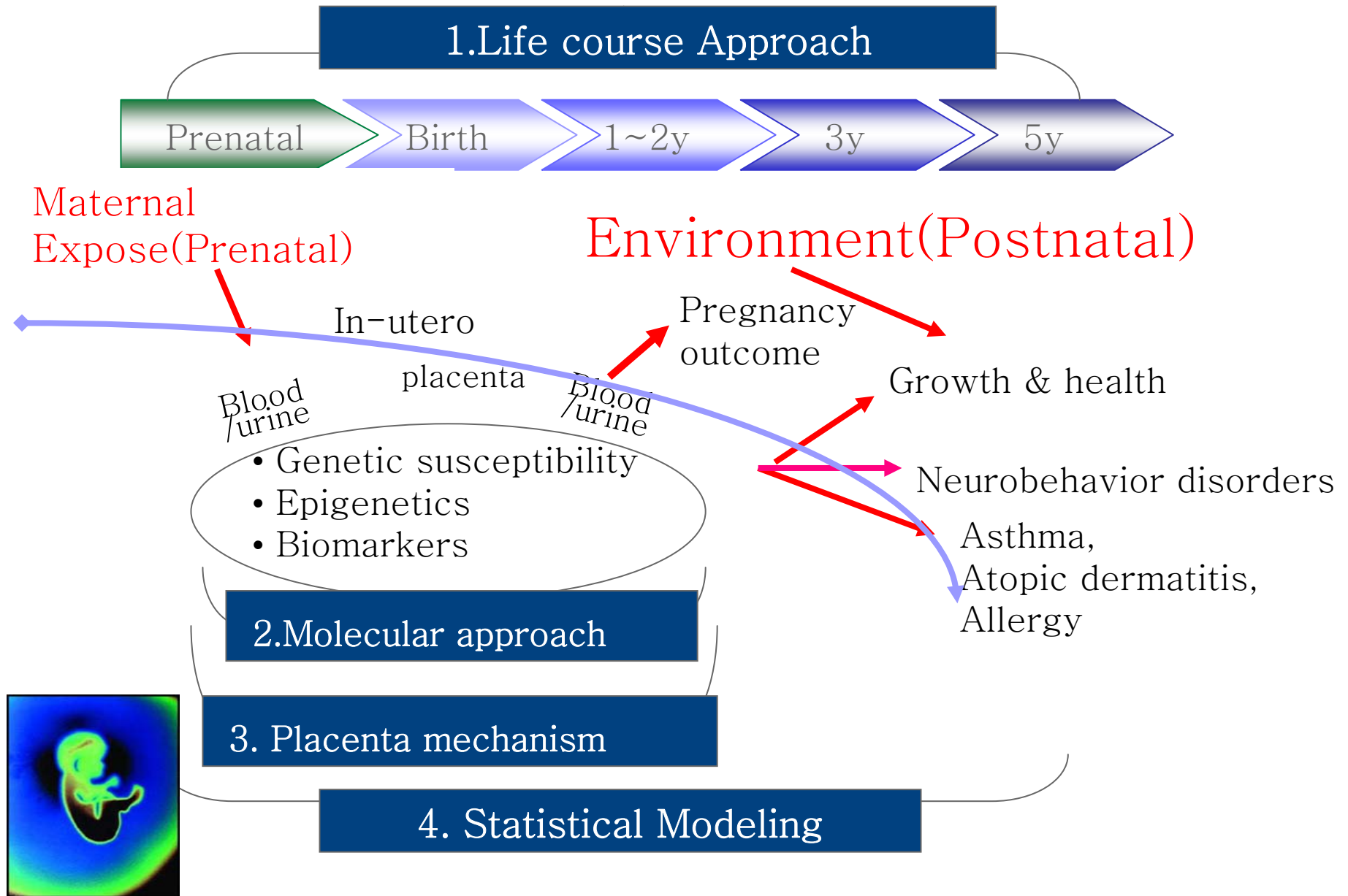
- Management of cohort of maternal, infantile, and children group
- Evaluation and research of environmental exposure in mother and children
- Evaluation and analysis of exposure and health index
- Analysis and research of environmental factors for pregnancy outcome and children's health effects such as atopy, asthma and allergy, and neurobehavioral development

2010 (Fifth Year): Evaluation and Suggestion of Environmental Health Policy for pregnant women and children

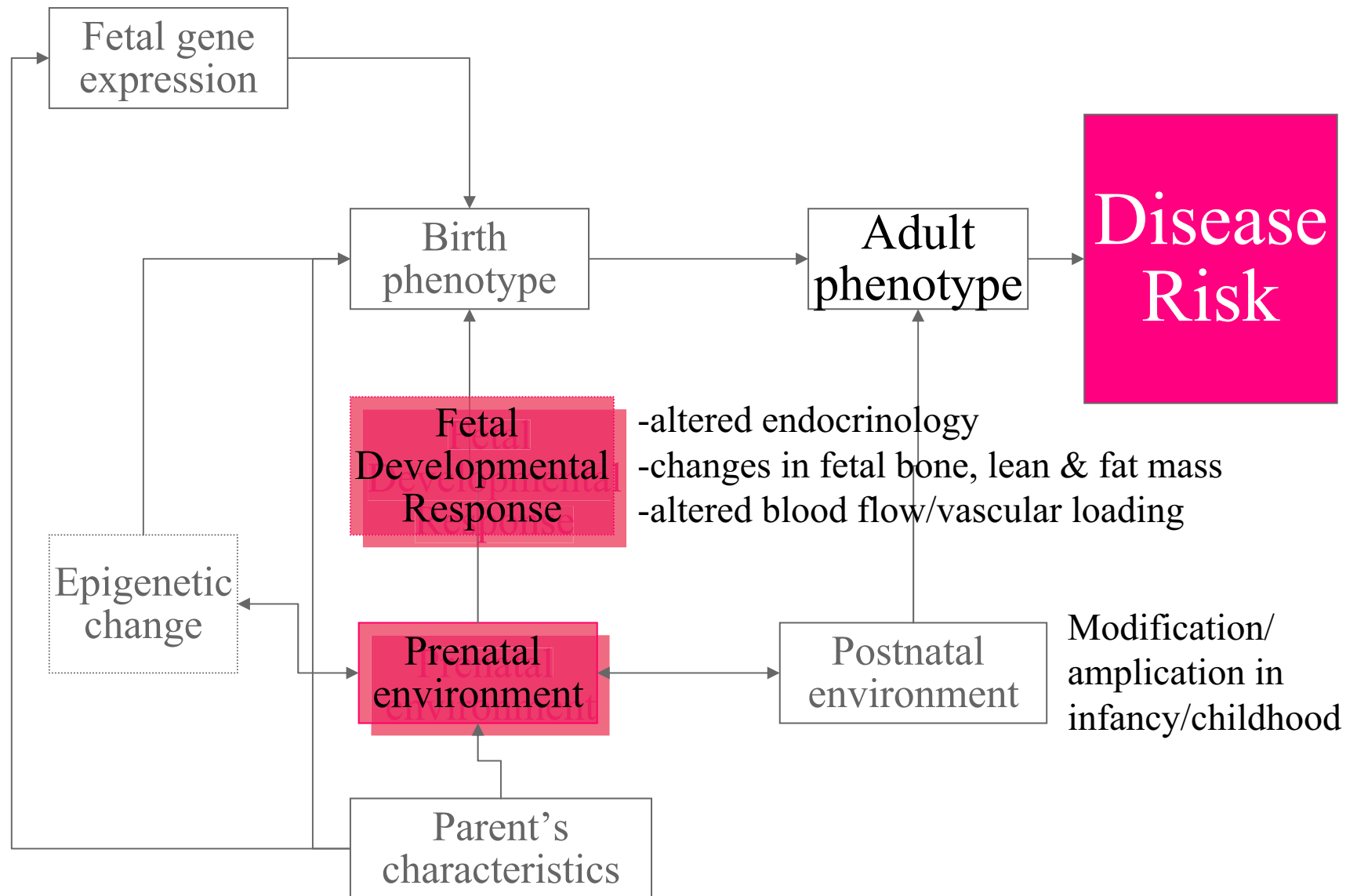
- Analysis of cohort of mother, infant, and children
- Evaluation of environmental exposure in maternal and children group
- Evaluation of health-related index (air pollution and heavy metals) and exposure
- Analysis of environmental factors for pregnancy outcome and children's health effects
- Suggestion of national policy for preventive medicine and cost-effective measures for reducing environmental exposure to pollutants



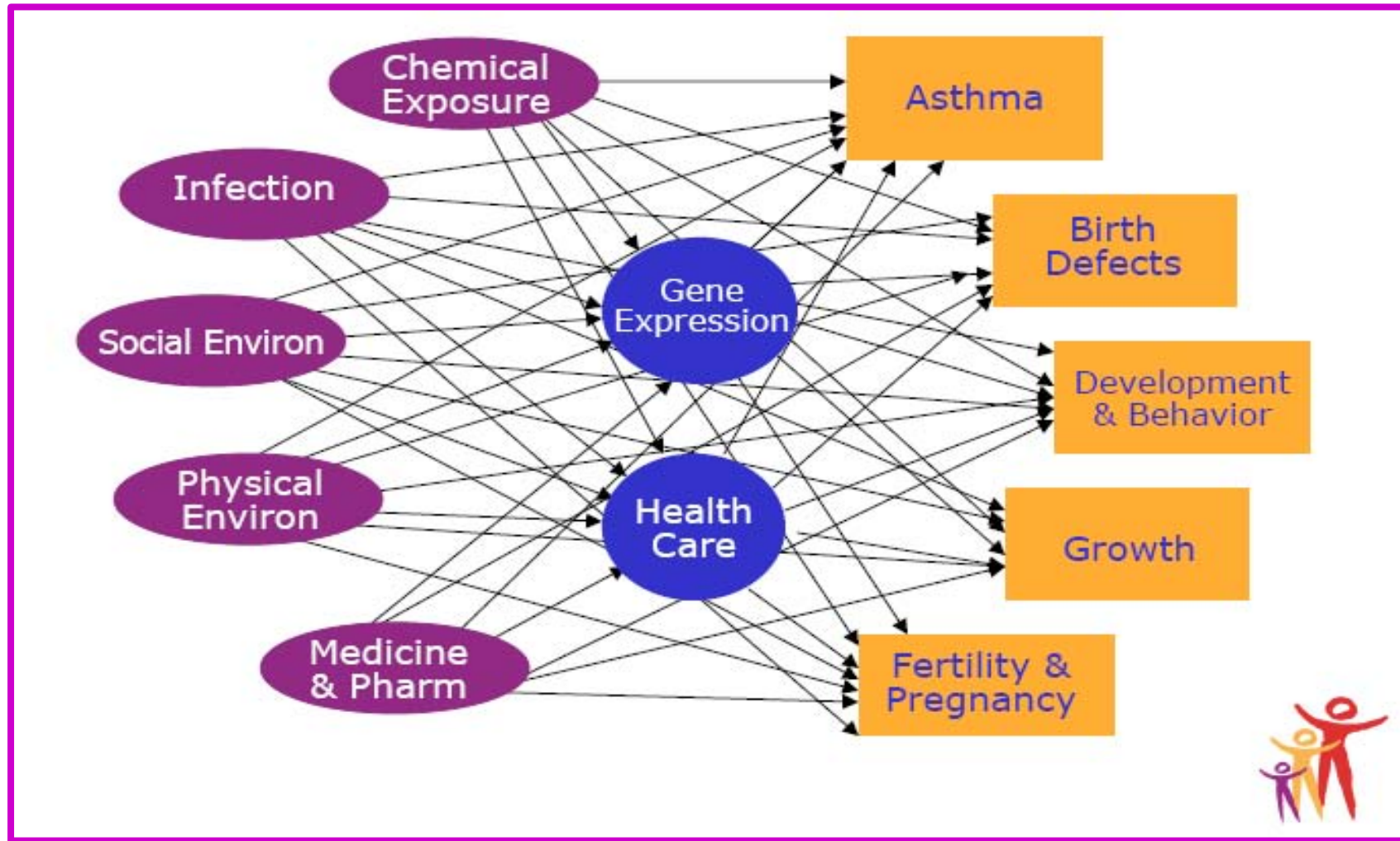
Hypothesis of MOCHE



Theory: the 'developmental origins'



Exposures, outcomes, and interactions



Introduction of center



Study locations



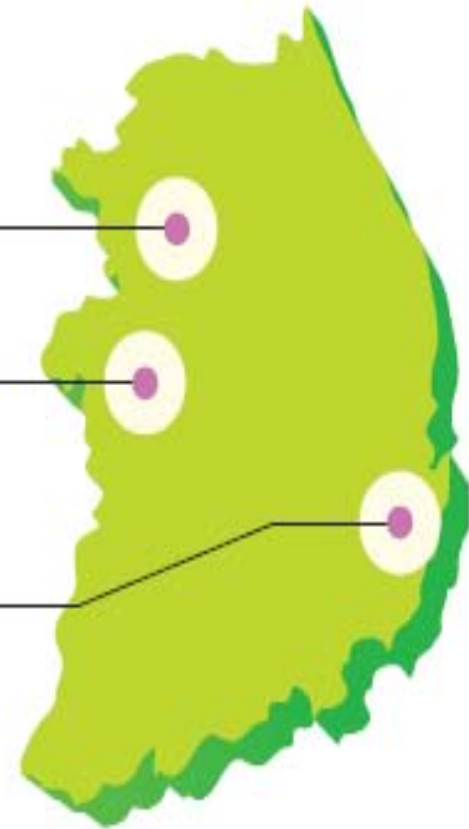
Study locations

3 Frontier Centers

SEOUL Metropolitan city

Cheonan Clean city

Ulsan Polluted city



There are a coordinating center, three frontier centers, a bio depository center, environmental exposure assessment center, nutrition center, and a neurobehavioral center in MOCHE.

Study locations



Study loca

Seoul was selected for a study area due to large population size, heavy traffic volumes, serious air pollution and high density of apartments.

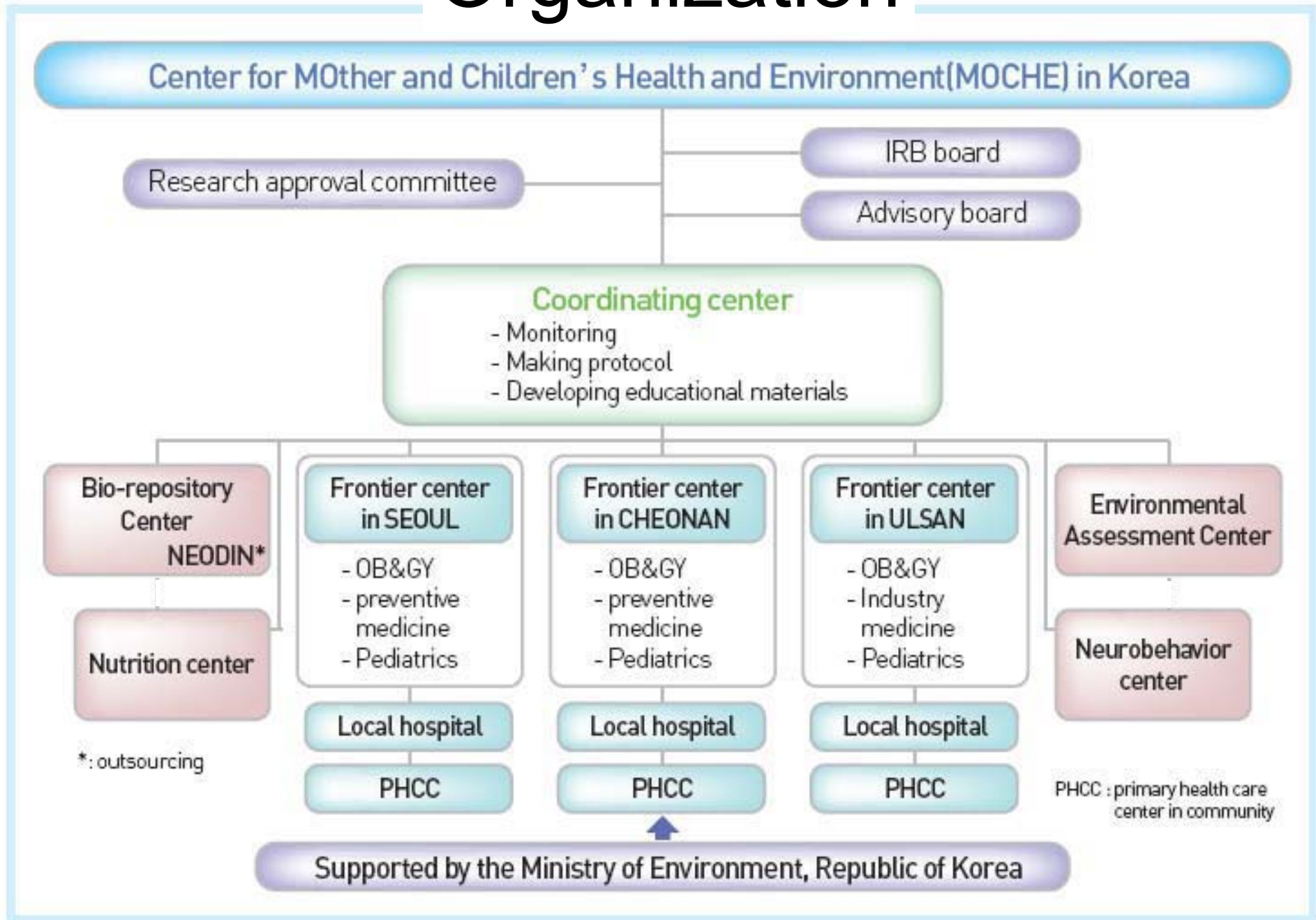
The cities of Cheonan and Asan are relatively clean and mixed area of rural and high tech industrial (mainly, informational technology and semiconductor industries) regions.

Ulsan, the largest industrial complex city in Korea, has various kinds of industries such as shipbuilders, car manufacturers, and petrochemical factories.

There are a coordinating center, three frontier centers, a bio depository center, environmental exposure assessment center, nutrition center, and a neurobehavioral center in MOCHE.



Organization



Center for MOther and Children's Health and Environment(MOCHE) in Korea

Research approval committee

IRB board

Advisory board

Coordinating center

- Monitoring
- Making protocol
- Developing educational materials

Bio-repository Center
NEODIN*

Nutrition center

*: outsourcing

Frontier center
in SEOUL

- OB&GY
- preventive medicine
- Pediatrics

Local hospital

PHCC

Frontier center
in CHEONAN

- OB&GY
- preventive medicine
- Pediatrics

Local hospital

PHCC

Frontier center
in ULSAN

- OB&GY
- Industry medicine
- Pediatrics

Local hospital

PHCC

Environmental Assessment Center

Neurobehavior center

PHCC : primary health care center in community

Supported by the Ministry of Environment, Republic of Korea

MOCHE Coordinating Center (MOCHE CC)

- carries out local center monitoring, making protocol,**
- managing research expenses and IRB relation business**
- takes the leads in the present MOCHE project,**
- and plays a pivotal role in general planning of the project.**
- perform the logistical and technical support to handle all of the data**
- and will assist the study centers for coordination.**

Supported by the Ministry of Environment, Republic of Korea

center in community

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Environmental Assessment Center

Neurobehavior center

PHCC : primary health care center in community

Supported by the Ministry of Environment, Republic of Korea

Each Frontier center has a community-based collaborative network, being composed of university hospital and community health center.

**Three-four professors : obstetric doctor,
a pediatric doctor, and(a psychiatric doctor)
an epidemiologist**

**Two researchers, as active counselors : recruit
pregnant women and their husbands, and
follow up their new-born babies.**

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center in community

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Local hospital

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Environmental
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Neurobehavior
center

PHCC : primary health care
center in community

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Center for MOther and Children's Health and Environment(MOCHE) in Korea

Research approval committee

IRB board

Bio-repository center,

We investigate the relationship between

-parents/babies' biomarkers (including environment exposure markers) and

-babies' health outcomes such as growth development, allergy/asthma, and neurocognitive development.

PHCC

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PHCC : primary health care center in community

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Center for MOther and Children's Health and Environment(MOCHE) in Korea

We collect FFQ and 24h-recall data through an interview of each pregnant woman.

Dietary intake during pregnancy was assessed by a 24-hour recall method and preconceptional diet was assessed by a Food Frequency Questionnaire(FFQ).

*: outsourcing

