

Introduction to One Health

JOINT SUMMER CAMP 2024

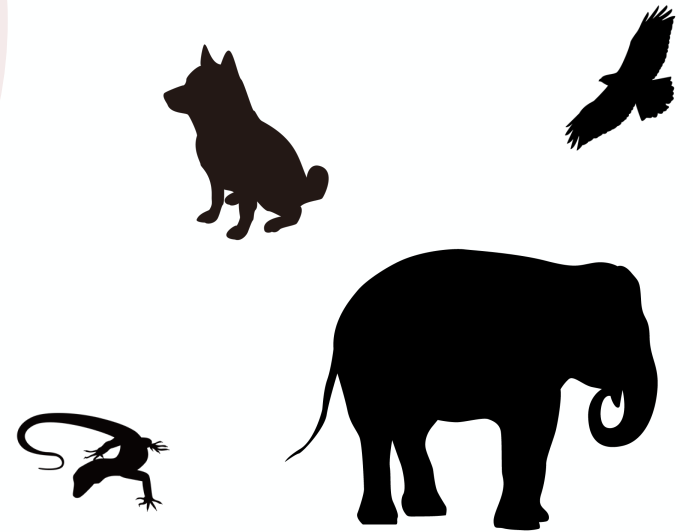
JAPAN TERM AT HOKKAIDO UNIVERSITY,
SAPPORO

2024/7/29 RIO DOYA

Key Question



“Health”
?

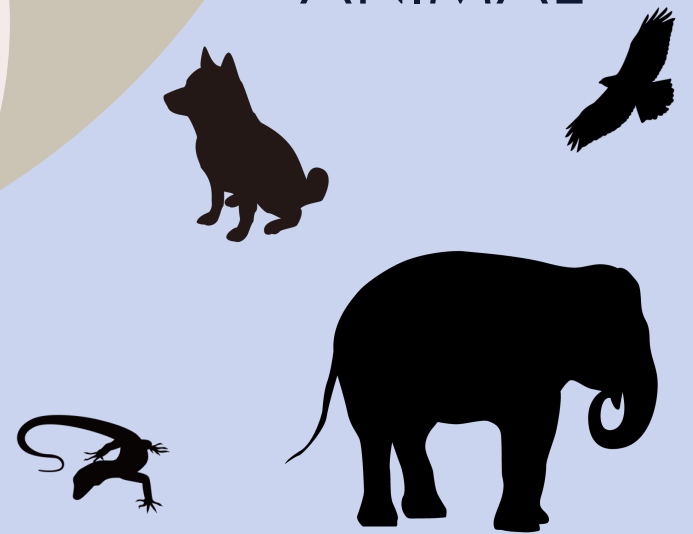


HUMAN



“Health”
?

ANIMAL

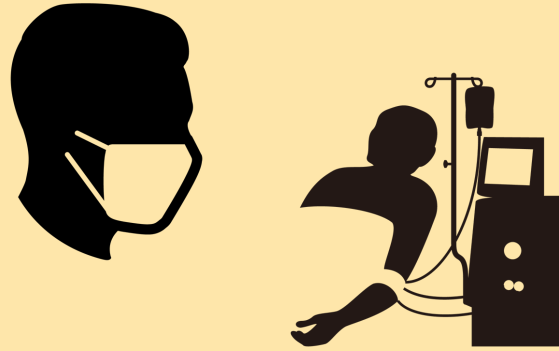


ENVIRONMENT

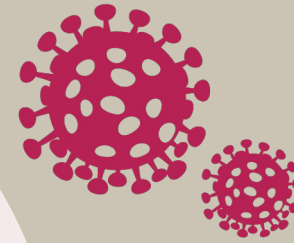


Example

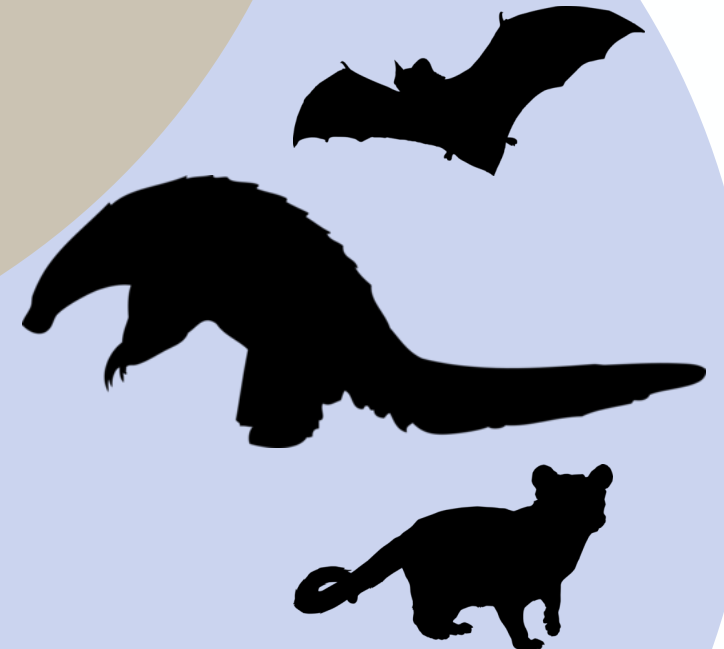
COVID-19



Zoonosis

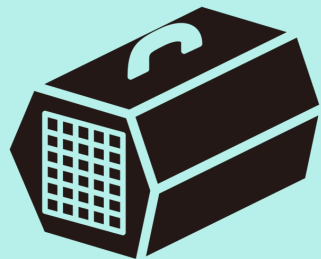


One Health



Wildlife trade

Economic gap

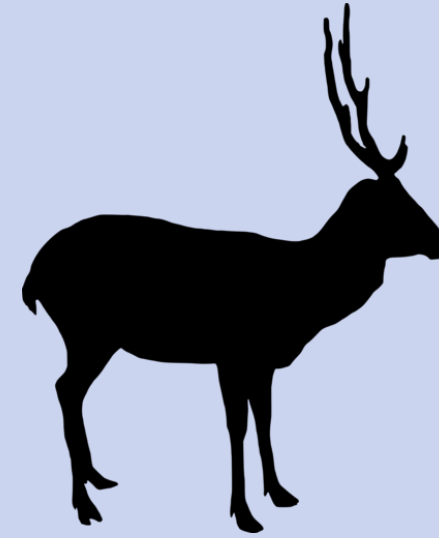


Animal Health

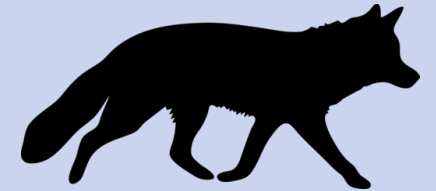
What concerns veterinary scientists?



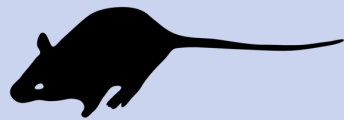
QOL of Husbandry Animals



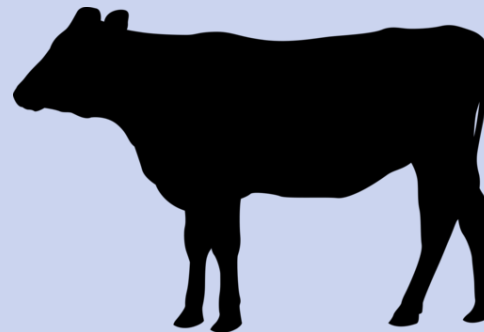
Wildlife Management



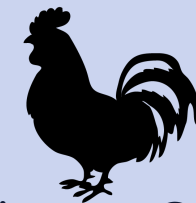
Public Health



Animal Welfare



Food Security



Disease Control

Animal Health

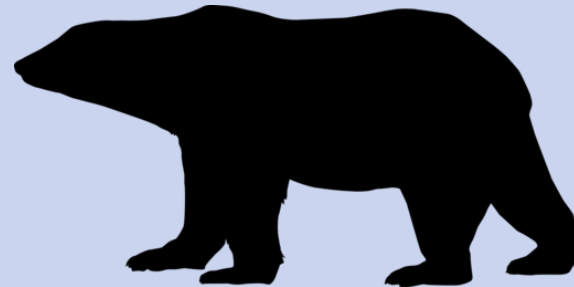
July. 30th Maruyama Zoo

What is the role of Zoo?

1. Conservation of Species
2. Education
3. Survey & Research
4. Recreation

-Japan Association of Zoos and Aquariums

Target 1
Conservation Efforts



Global Climate Change



Local Human Animal Conflict

Animal Health

July. 30th Maruyama Zoo

What is the role of Zoo?

1. Conservation of Species
2. Education
3. Survey & Research
4. Recreation

-Japan Association of Zoos and Aquariums

Target 2
Environmental Enrichment



Environmental Enrichment

Animal Health

July. 30th Maruyama Zoo

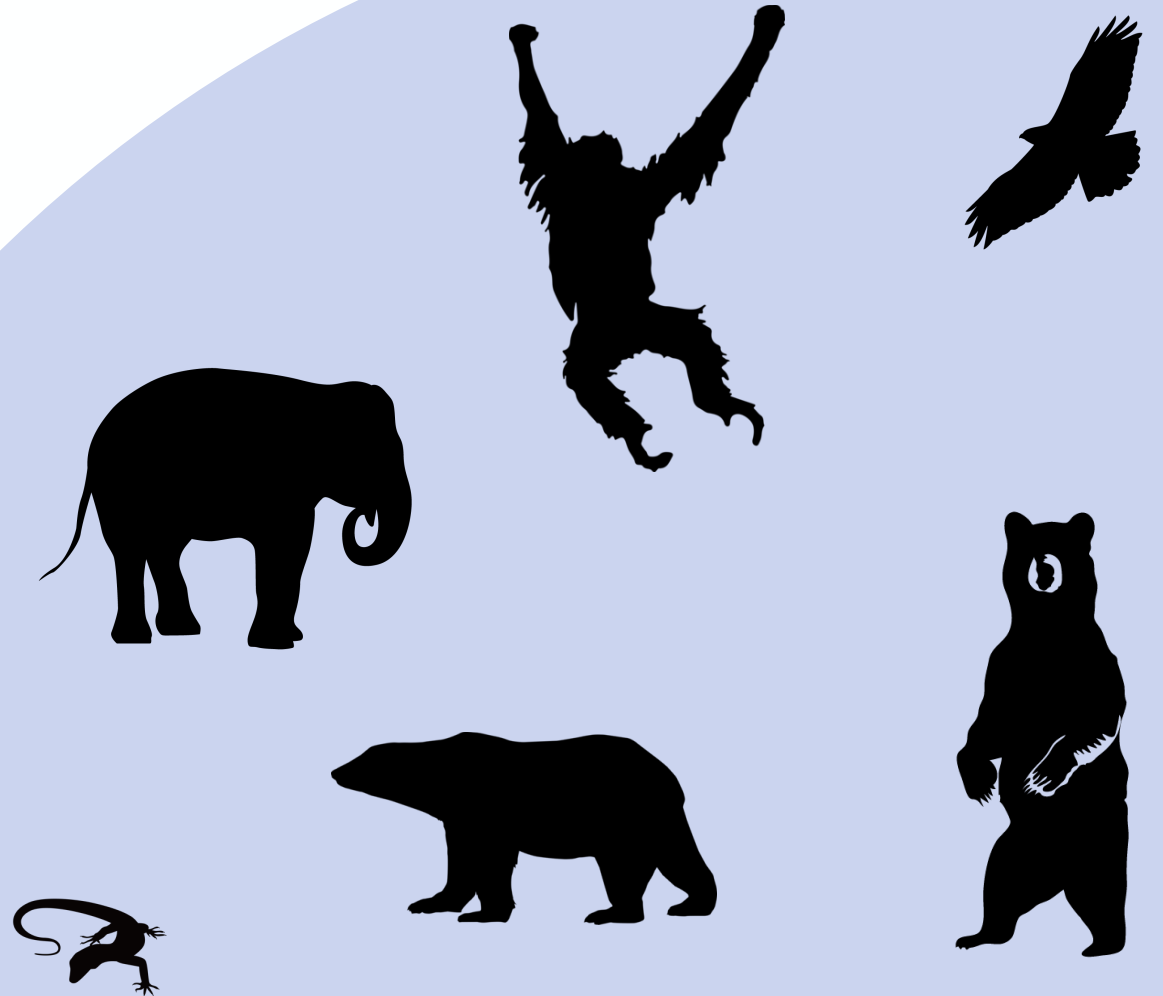
What is the role of Zoo?

1. Conservation of Species
2. Education
3. Survey & Research
4. Recreation

-Japan Association of Zoos and Aquariums

Target 1
Conservation of Biodiversity

Target 2
Environmental Enrichment



Environmental Health

What is threatening the ecosystem?



Decreasing biodiversity



Climate change



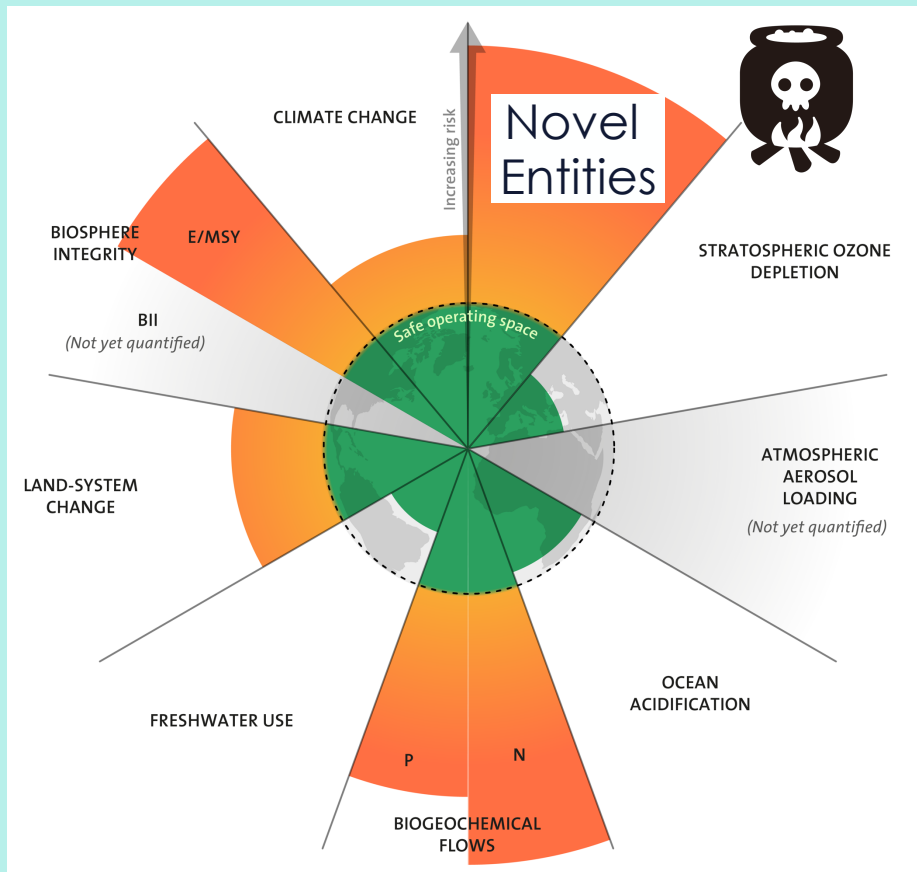
Land-use shift



Chemical pollution

Environmental Health

Planetary Boundaries

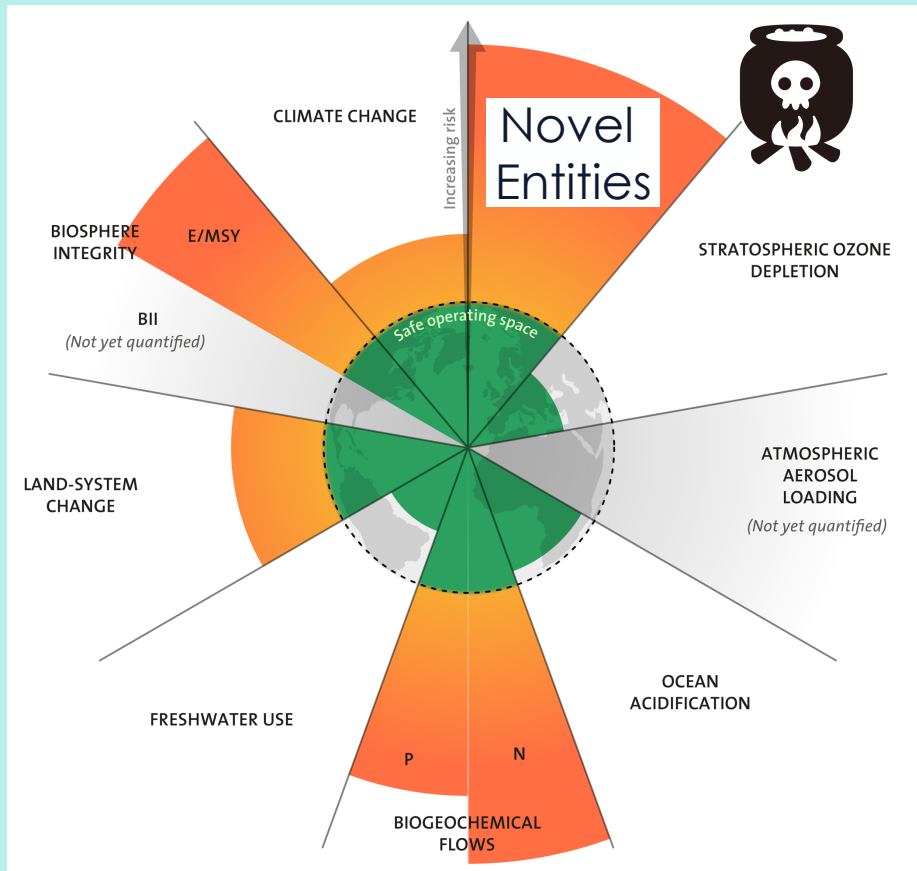


- ✓ Demarcating human pressures to nine biophysical Earth's system to visualize the gap between the amount of environmental load by human activities and the resilience of the Earth's dynamics.
- ✓ If the quantified pressure exceeded the "Safe operation space", the capability of the earth's system to maintain current state, irreversible state shift occurs making it difficult to human development.

cf) [Wang-Erlandsson et al. 2022, Nature Reviews & Environment](#)
[Persson et al. 2022, Environmental Science and Technology](#)

Environmental Health

Planetary Boundaries



“Novel Entities”

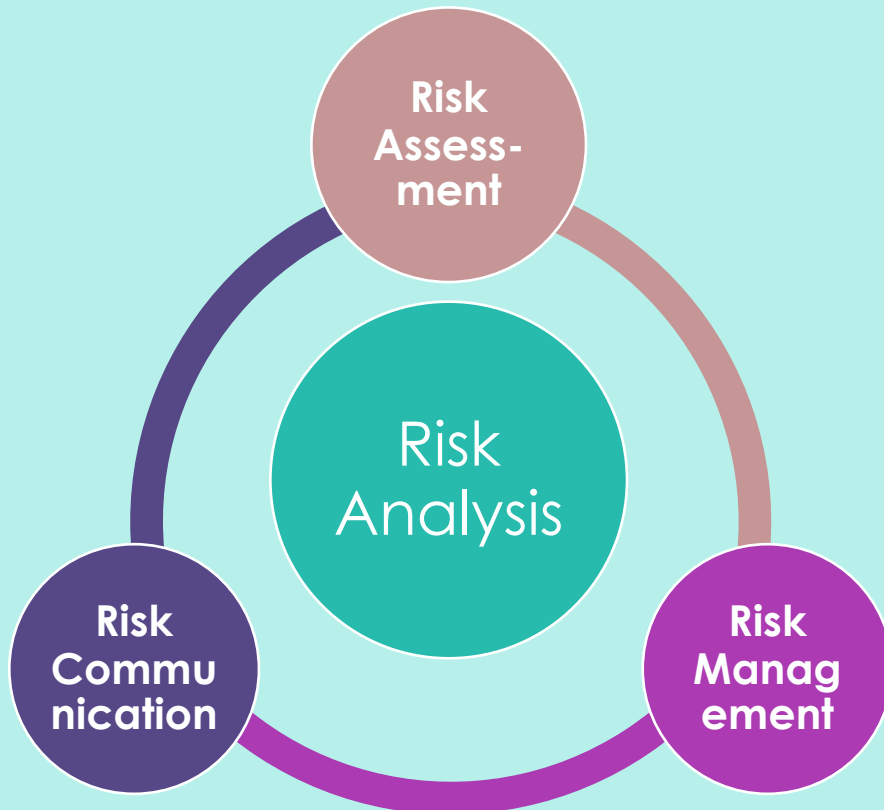
- ✓ Newly added to the one of the updated version in 2015
- ✓ “Novel” in geological sense
 - Artificially engineered chemicals/materials/organisms
 - Herbicide, pesticides, pharmaceutical compounds, plastics
 - Naturally occurring but artificially mobilized elements
 - “Heavy metals”

Risk analysis and lifecycle management

Environmental Health

July 31st-Aug 1st Lecture on Environmental Toxicology
& Lab experience on Chemical Analysis

Risk analysis and lifecycle management



What is Risk?

Target 1
Pollution Effects on Health

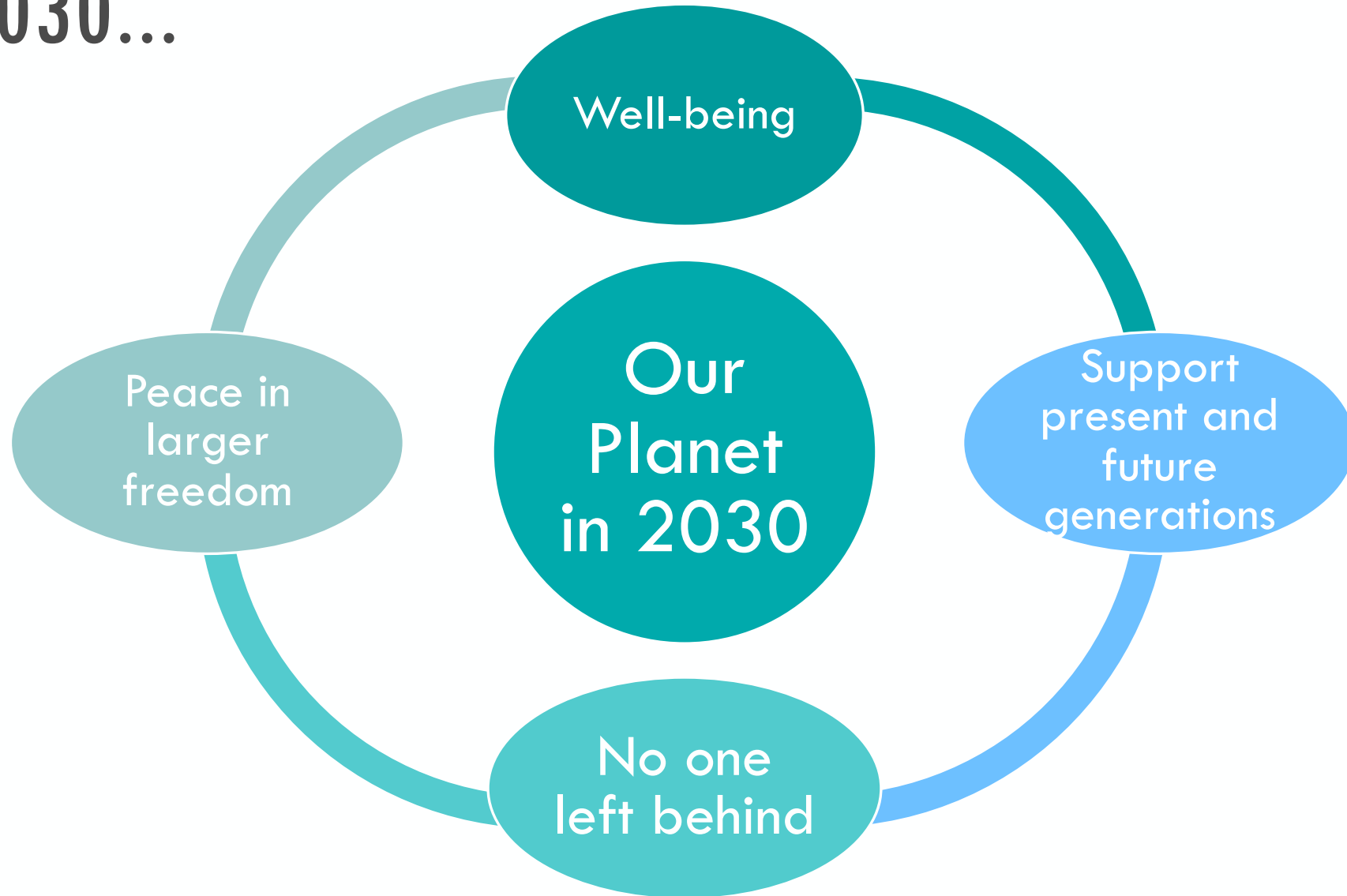
Potential harm
 $\text{Risk} = \text{Hazard} \times \text{Exposure}$
Likelihood of occurrence

Target 2
Chemical Analysis

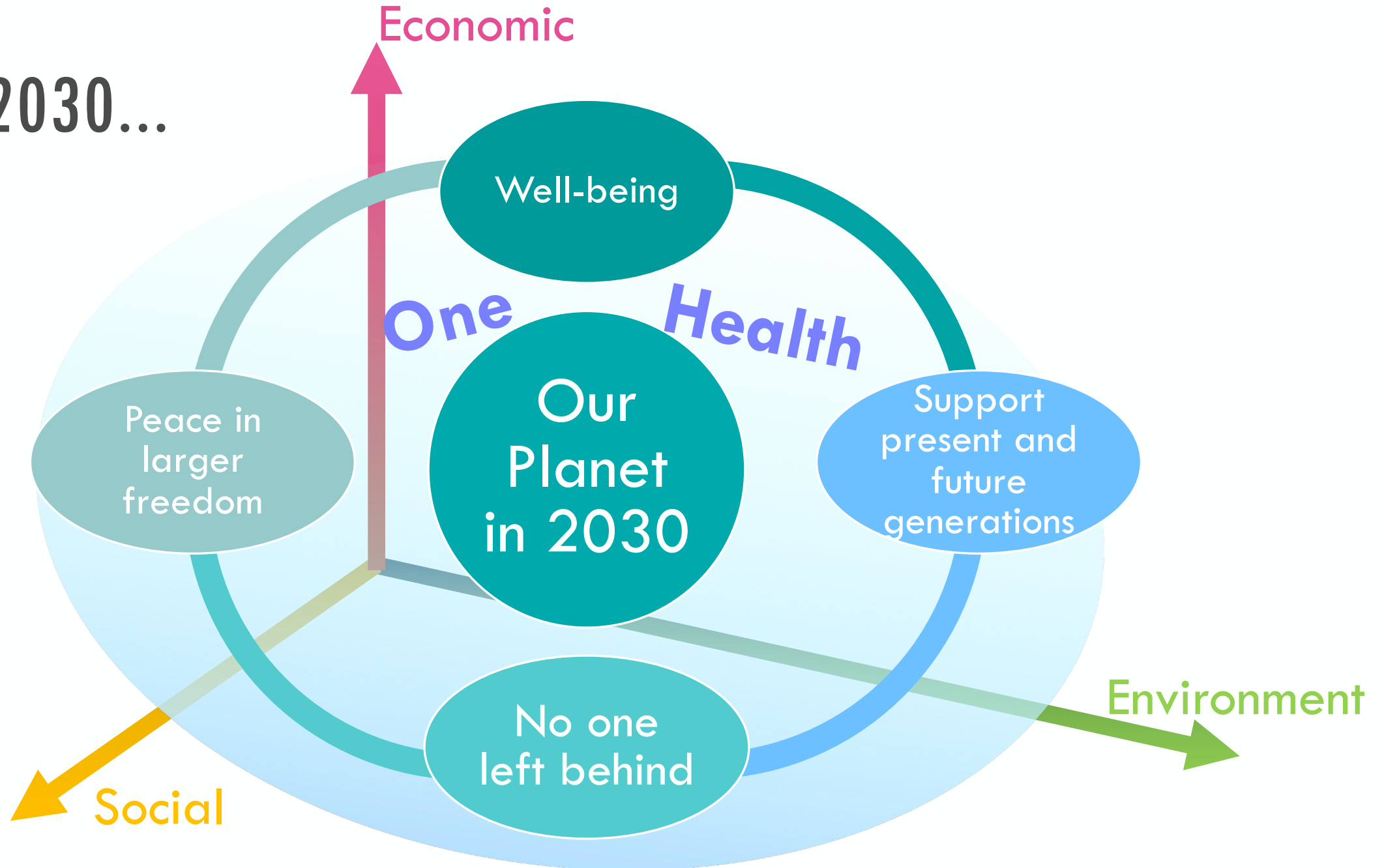
IN 2030...



IN 2030...



IN 2030...



HUMAN HEALTH

Economics

Anthro-
pology

Enginee
ring

Conservation
Medicine

Medicine

Agri
culture

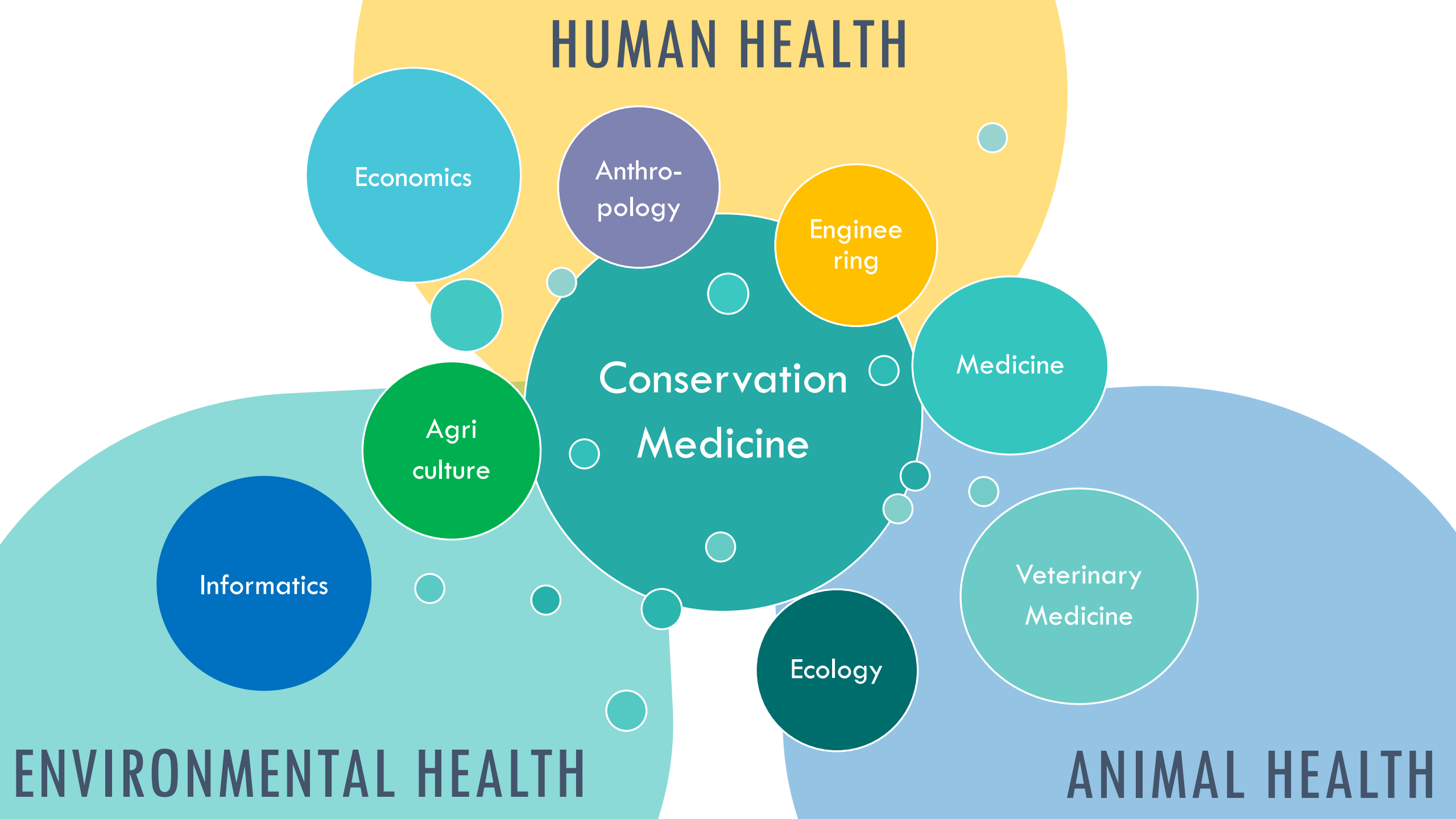
Informatics

Veterinary
Medicine

Ecology

ENVIRONMENTAL HEALTH

ANIMAL HEALTH



Outline of JSC *Japan Term*

✓Expected Outcome

“Recognizing **One Health** as your own matters based on **interdisciplinary** and **cross-cultural** understanding.”

Jul. 29 th	13:00-14:30	Japanese Culture-1 : Japanese Language @ 3 rd Lecture Room
	15:00-17:00	Japanese Culture-2 : “Washi” craft paper experience @4 th Laboratory
	17:15-17:45	Lecture Introduction to One Health
Jul. 30 th	9:00-9:45	Lecture on Animal Welfare by Dr. Otani @ 3 rd Lecture Room
	9:45-10:20	Bus travel to Maruyama Zoo
	10:30-11:35	Backyard tour Gr.1-1,1-2, 2-1,2-2 / Animal welfare evaluation Gr.3-1,3-2
	11:40-12:25	Backyard tour Gr.3-1,3-2/ Animal welfare evaluation Gr.1-1,1-2, 2-1,2-2
	12:25-14:00	Lunch, Continue exploring the zoo
	14:00-15:00	Animal welfare evaluation
	15:00- 16:00	Visiting Hokkaido Shrine
	16:00-16:45	Bus travel back to university
	16:45-17:15	Wrap-up discussion

Outline of JSC *Japan Term*

✓Expected Outcome

“Recognizing **One Health** as your own matters based on **interdisciplinary** and **cross-cultural** understanding.”

Jul. 31 st	8:50	Meet at the entrance
	9:00-10:00	Lecture: Environmental Toxicology @4 th Laboratory
	10:00-12:00	Getting samples for mercury analysis
	12:00-13:30	Lunch
	13:30-16:00	Chemical Analysis-1: Measuring mercury in human sample
	18:00-	BBQ & Fireworks
Aug. 1 st	8:50	Meet at the entrance
	9:00-12:00	Chemical Analysis-2: Result check & wrap-up discussion @4 th Laboratory
	12:00-13:00	Lunch
	13:00-15:00	Preparation for the final presentation
	15:00-17:00	Japanese Culture-3: Tea Ceremony & “Yukata” traditional dress
	17:00-	(Japanese Culture-4: Somen Noodle experience)

Outline of JSC *Japan Term*

✓Expected Outcome

“Recognizing **One Health** as your own matters based on **interdisciplinary** and **cross-cultural** understanding.”

Aug. 2 nd	(9:00-10:00)	Preparation for the presentation
	10:00-12:00	Final Presentation @ Enreisou
	12:00-12:20	Closing Ceremony
	12:30-14:00	Farewell Lunch

Output

*“Recognizing **One Health** as your own matters based on **interdisciplinary** and **cross-cultural** understanding.”*

Aug. 2nd Final Presentation

- ✓ Make 6 groups based on your interest
- ✓ 10 min presentation + 5 min floor discussion
- ✓ Best Presentation Award will be given based on the judgement of the audience

Theme 1: Japanese Culture

- 1-1: Japanese Language & “Washi” Paper craft
- 1-2: Tea Ceremony & “Yukata” Traditional dress

Theme 2: Maruyama Zoo

- 2-1: Conservation Efforts, Education
- 2-2: Environmental Enrichment, Animal Welfare

Theme 3: Environmental Pollution

- 3-1: Pollution Effects on Human and Animal Health
- 3-2: Chemical Analysis

Output

*“Recognizing **One Health** as your own matters based on **interdisciplinary** and **cross-cultural** understanding.”*

Aug. 2nd Final Presentation

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Theme 1: Japanese Culture

1-1: Japanese Language & “Washi” Paper craft [Mia, Leah, Vincent]

1-2: Tea Ceremony & “Yukata” Traditional dress [Joy, Honoka, Jumpei, Jia, Nerissa]

Theme 2: Maruyama Zoo

2-1: Conservation Efforts, Education [Elzia, Chloe, Kim, Lin, Lucy]

2-2: Environmental Enrichment, Animal Welfare [Celia, Minxuan, Coco, Henriette, Yucheng]

Theme 3: Environmental Pollution

3-1: Pollution Effects on Human and Animal Health [Julia, Jane, Liu, Erik]

3-2: Chemical Analysis [Natsume, Corie, Ethan, Brooklyn]

At Maruyama Zoo

	Gr. 1-1	Gr. 1-2	Gr. 2-1	Gr. 2-2	Gr. 3-1	Gr. 3-2
AM-1 10:30- 11:35	Backyard tour[A]	Backyard tour[A]	Backyard tour[B]	Backyard tour[B]	Animal Welfare Evaluation [Asian Elephant]	Animal Welfare Evaluation [Asian Elephant]
AM-2 11:40- 12:25	Animal Welfare Evaluation [monkey House]	Animal Welfare Evaluation [monkey House]	Animal Welfare Evaluation [monkey House]	Animal Welfare Evaluation [Asian Elephant]	Backyard tour[C]	Backyard tour[C]
PM 14:00- 15:00	Animal Welfare Evaluation [Polar Bear]	Animal Welfare Evaluation [Polar Bear]	Animal Welfare Evaluation [Polar Bear]	Animal Welfare Evaluation [Amur Tiger]	Animal Welfare Evaluation [Amur Tiger]	Animal Welfare Evaluation [Amur Tiger]

THANK YOU FOR LISTENING

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