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Central  
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Office

# Expert Meeting on Statistics on Gender and the Environment Thailand, 2-4 September 2019

**Making surveys fit for purpose: Integrating gender across environment-related questionnaires, methodologies and data processing**

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# Overview of Presentation

- What are environment statistics and accounts
- Climate presents very different challenges across the World – indicators vary from causes to adaptation and mitigation
- Which population segments are taking the lead in adopting mitigation and adaptation measures to reduce extent and impacts of climate change
- World census a good starting point for collecting data as it has sex and age as well as core and non-core environment-related questions
- Using unique person and household identifiers to combine administrative and survey microdata
- Attaching environment modules to multi-purpose household surveys
- Need for a more integrated social and economic view of environment statistics - example indicators
- Role of legislation in achieving change



# UN System of Environmental Economic Accounts

- UN Central Framework is the basis for environmental accounts
- Environmental accounts are satellite National Accounts
- Flows from the environment into the economy (e.g. ecosystem services)
- Flows from the economy into the environment (e.g. air emissions and wastewater)
- Monetary accounts such as environment taxes and subsidies
- Lack of a socio-demographic focus in Central Framework
- Nature's contribution to our wellbeing and the cost of degrading the environment are not sufficiently measured in National Accounts



# Environment Accounts and Statistics

## UN Central Framework

Air emission accounts

Environmental taxes

Material flow accounts

Environmental protection accounts

Environmental goods and services

Physical energy flow accounts

Environmental subsidies

Potentially environmentally damaging subsidies

Water accounts

Forestry accounts

Land cover and land use

Ecosystem accounts

Biodiversity

Natural capital

Carbon accounts

Energy statistics

Waste statistics

Water statistics

Forestry statistics

Fishery statistics

Air quality

Water quality

Agri-environment indicators



# Climate Change Pressures and Responsiveness

- The World's population increased from 2.5 billion persons in 1950 to 7.6 billion in 2018. Around 60% is in Asia, 17% in Africa and 5% in North America
- Deaths of children under five years per 1,000 live births decreased from around 213 in 1950 to 46 in 2015
- Life expectancy at birth rose from 47 years in 1950 to 71 years in 2015
- Greenhouse gas and air emissions increasing as consumption of fossil fuels rise
- Pressures on our environment are out of balance with the capacity of our environment to absorb them
  - Which socio-economic groups are most impacted by climate change?
  - Which groups are responding most by changing their behaviours?
  - Which groups are proceeding on a business as usual basis?



# Environment Statistics and Social Data

- Household surveys not required to compile environment accounts
- Attaching occasional ad hoc Environment modules to existing household surveys would combine environment-focused data with a large range of socio-demographic data from the main survey
- Air emissions, air quality, and water quality are usually collected by environmental agencies and do not involve household surveys
- Impact of climate change may be very different for rural and urban areas so household sample needs to be representative of both
- Household composition is an important analysis variable for understanding the environment behaviours of a household e.g. couple with young children



# Start with 2020 World Population Census

## Core questions

- Water supply system (piped water in the housing unit, etc.)
- Type of heating (central heating, open fire)
- Type of building (detached, apartment, etc.)
- Number of rooms (heating, overcrowding and spreading illnesses)
- Period of construction (energy efficiency indicator)

## Non-core questions

- Sewage disposal system (public system, private, etc.)
- Main type of energy used for heating (solid fuels, oil, etc.)
- Air-conditioning (independent system, etc.)
- Construction materials (outer walls)
- Mode of transport to work/education (fossil fuels, public transportation)



# Integrate Administrative and Survey Microdata

- Make more use of existing data sources by **linking microdata** using unique person and household identifiers
- National Statistical Offices have legislation that permits them to link survey and administrative microdata for statistical purposes
- Reuse existing data sources from an environment and gender perspective e.g. mortality statistics
- Environmental module attached to Labour Force Survey in Ireland found that owner-occupied households with children were the most environmentally aware
- The module questionnaire is available at
- <https://www.cso.ie/en/media/csoie/qnhs/documents/QNHSEnvironmentModuleQQ22014.pdf>



## Characteristics that Gender Indicators can be Built around

Person	Sex, age, labour force status, health and disability status, household composition
Exposure risk	Occupation, exposure to hazardous substances, outdoor air quality, health conditions
Dwelling characteristics	Type of dwelling, period of construction, water supply, wastewater, main heating/cooling method, urban or rural location, vulnerability of location to natural disasters
Lifestyle	Environmental behaviours e.g. recycling, green purchases, reducing waste



# Agriculture and Gender

- Agriculture is a very diverse sector ranging from large scale commercial farms with employees and large investment in machinery and buildings to small family farms where production is a mixture of growing for own consumption and for sale and the labour input is mostly from family members
- Persons living in family farm households often have off-farm employment so for some analyses it is the total income of agricultural households that is the most relevant measure
- Use of pesticides, fertilisers, nitrates, spreading of animal slurry, emissions from rearing cattle etc. are agri-environment indicators (see slide 4)
- Agriculture may be better treated as a separate domain for the purposes of gender statistics as it is a major area on its own



# Example Possible Indicators for Gender Analysis

- The next slides look at examples of more specific areas where gender and age could be integrated with social and economic data to gain a better understanding of impacts and responses
  - Environment-related behaviours
  - Water statistics
  - Energy poverty
  - Seasonal mortality
  - Interaction with nature
  - Road transport
  - Environment legislation



- There are many other areas that could be examined so this list is not meant to be comprehensive

# Environment-related Behaviours

- Method of commuting to work and school (car driver, passenger, etc.)
- Food and commodity purchasing – e.g. plastic packaging
- Consumer recognition of energy efficiency labels
- Influence of energy efficiency rating when purchasing electrical items
- Willingness to segregate recyclable waste
- Method of disposing of chemical products, waste oils, small batteries, glass, used clothes, etc.
- Precautions taken to prevent food waste
- Use of renewable energy products
- Repairing leaking water taps and using energy efficient bulbs
- What household types are making a switch to greener behaviours



# Water Statistics

- The availability of an adequate supply of clean water is vital for basic domestic needs such as cooking, hydration, personal and home hygiene, etc.
- Water statistics are of more concern if no piped water supply is available
- How is household water sourced if no piped supply is available?
  - Brought by publicly funded water tankers
  - Sold by privately operated water tankers
  - Collected by going to public wells
  - Risk of unsafe and inadequate facilities to store water at home
  - Risk of having to manage water use so carefully that there is an impact on health and hygiene
  - Time taken to collect water is time not spent engaging in income generating or care activities



# Energy Poverty

- Can people keep their homes adequately warm in Winter and cool in Summer
- Energy efficiency of dwellings by period of construction and type of building
- Is there adequate ventilation to prevent mould and damp
- Are rented dwellings of a lower standard
- Indoor air quality of dwellings especially those occupied by the more vulnerable such as elderly persons living alone and single parents with young children
- Pay-as-you-go coin meters may be used by households to avoid a large bill
- Household expenditure surveys can analyse fuel costs by household composition
- Are government schemes supporting energy efficiency improvements targeted at the most vulnerable groups

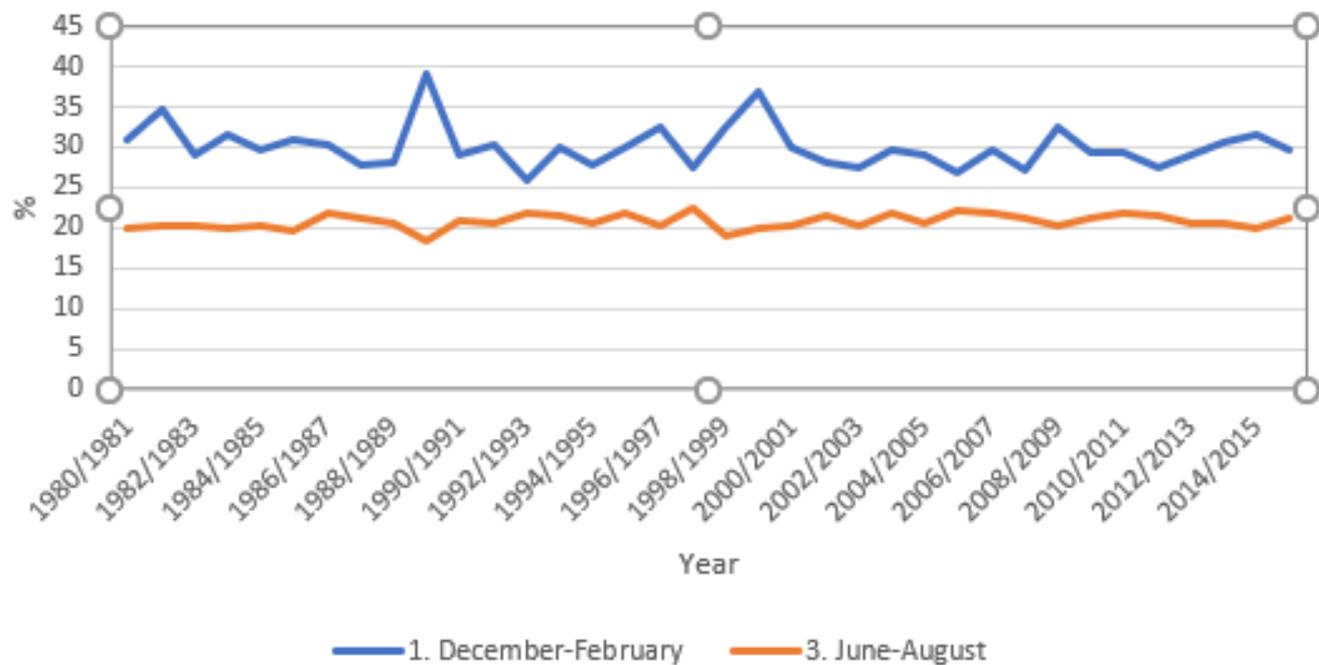


# Seasonal Mortality

- Energy poverty can result in higher percentages of deaths in the coldest and hottest months
- *Study from Guangzhou in Southern China found that Excess winter mortality was higher in the elderly, females, and those with low education level*
- Inability to maintain comfortable temperatures at home can result in a use of scarce health resources due to short-term hospital admissions
- Pollutants can cause cardio-vascular and pulmonary problems and extreme heat and cold exacerbates breathing problems
- Older persons exposed to poor outdoor or indoor air quality are more susceptible to extreme weather
- Mortality data disaggregated by cause of death, sex, and age group should be available for many countries
- The **next slide** shows the percentage of deaths from circulatory and respiratory causes for December to February and for June to August for women aged 85 and over in Ireland. Everything else being equal the proportion of deaths in each quarter would be 25%.



% of Annual Deaths in December-February and June-August for Women aged 85 and over



# Interactions with Nature

- Ecosystem accounts include provisioning services (food, wood, other raw materials), regulating services (pollination of crops, prevention of soil erosion, water purification), and cultural services (recreation, wellbeing)
- Pharmaceutical age resulted in rapid switch to manufactured medicines
- Knowledge of how to use plants and herbs as medicines would become very important again if effectiveness of antibiotic treatment decreases
- Who are the guardians of this knowledge
  
- Growing garden fruit and vegetables and harvesting wild produce
- Planting garden shrubs and flowers to encourage biodiversity
- Reducing erosion by planting grass and trees to bind soil together
- Harvesting freely available produce from hedgerows and seashore



# Road Transport

- Road transport is responsible for a high proportion of air emissions
- Electric vehicles will lead to improvements in urban air quality
- All countries probably have vehicle owner registers containing sex and age of registered owner as well as engine type and capacity and age of vehicle
- Possible to analyse whether there is a gender dimension in the adoption of hybrid and electric and smaller vehicles
- Health risk to persons living in areas with high volumes of traffic
- In Ireland, the proportion of females aged 15 years or over driving to work increased from 27% in 1986 to 65% in 2016.



# Meteorological Indicators as a Benchmark

- Cross-country comparison of meteorological indicators would give a quick understanding of the different climate challenges in different parts of the World
- Duration of droughts, frequency and intensity of heatwaves, length of growing season, number of rain days etc.
- Hydrological gauges provide indications of flood risk
- Landscape changes may result in rainfall more quickly reaching rivers thus increasing the risk of flooding
- Meteorological data combined with population and real-time satellite information are used by rescue teams during a natural disaster



# Using Legislation and Policy to Achieve Change

Legislation can result in rapid improvements in environment quality

- Reduce waste to landfill and illegal dumping
- Air and water quality compliance standards
- Movement away from coal powered electricity generation
- Restricting access of diesel and petrol vehicles to city centre areas
- Introducing cycle lanes and pedestrian zones
- Green and blue amenity areas especially in urban areas
- Subsidise purchase of hybrid and electric vehicles and charging points
- Provision of a regular clean water supply
- Amendments to building insulation standards resulted in a huge improvement in the energy efficiency of new buildings in Ireland



# Domestic Building Energy Ratings

Quarter 2 2019

Table A: BER Ratings by Period of Construction

*% of row*

Period of construction	Energy rating						Total
	A	B	C	D	E	F-G	
1700-1977	0	4	18	25	20	33	254,502
1978-1999	0	6	40	36	13	6	240,508
2000-2004	0	9	60	22	6	2	151,528
2005-2009	1	35	51	10	3	1	142,533
2010-2014	36	55	7	1	0	0	10,892
2015-2019	97	3	0	0	0	0	35,520



# Summary

- Environment accounts are not based on conducting household surveys
- Need to develop the socio-demographic dimension of environment statistics so that those impacted most by degradation of our environment can be identified and those taking the lead in adopting environmental behaviours are recognised
- It may be more practical to add an environment dimension to socio-economic surveys rather than a socio-economic dimension to environment surveys
- The World Census, household survey modules, and integration of administrative and survey microdata are opportunities to establish data collection on environment-related topics with a demographic context
- Meteorological data can be used to define the challenges
- Indicators such as energy poverty and seasonal mortality could be used to present a combined environment, health, and gender view





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