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# Assessing e-Environment Readiness: The *ITU e- Environment Readiness Index* (*EERI*)

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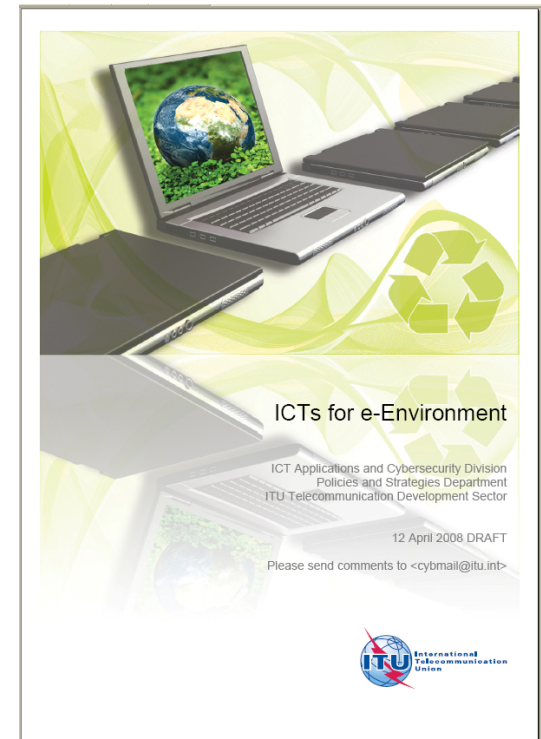
# ITU Work on e-Environment

- ITU mandate on ICT applications and strategies:
  - Co-facilitator of WSIS Action Line C7 on e-Environment
  - Develop guidelines, training materials and toolkits on technology & policy aspects of e-Environment applications
  - Assist developing countries in implementing relevant ICT applications for environment and sustainable development



# *ICTs for e-Environment* Report

- Objective:
  - Provide guidelines for developing countries on the use of ICTs for better management and protection of the environment as a key part of their development process, with particular focus on **climate change**
- Examines six areas of ICT use:
  - Environmental Observation
  - Analysis
  - Planning
  - Management and Protection
  - ICT Mitigation and
  - Capacity Building



<http://www.itu.int/ITU-D/cyb>



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## Current ITU-D Activities

- To assist decision-makers in ITU Members States, ITU-D has initiated a series of activities:
  - **E-Environment toolkit:** Practical guidelines for assessing needs and establishing strategies for the implementation of national e-environment plans
  - **Capacity building:** Joint training with the Abdus Salam International Centre for Theoretical Physics (ICTP)



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## E-Environment Toolkit

- Currently being finalized
- Practical tool for **rapid assessment** of a country's potential for using ICTs to help mitigate and adapt to environmental change
- Identifies **key indicators** reflecting country readiness to use ICTs for fighting environmental change
- Conceived as part of a **comprehensive e-sustainability strategy**



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## Components of the e-Environment Toolkit

- The Toolkit will include:
  - A list of first tier and secondary **indicators**
  - The **e-Environment Readiness Index (EERI)**: Methodology and calculations for assessing e-environment readiness
  - **Guidance** for developing an e-sustainability strategy
  - Online and other **resources** regarding e-environment indicators

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# The EERI

- The EERI is a **composite index** of factors that contribute to e-Environment readiness at a **country level**
- Is a relative measure of potential contributions, both positive and negative, that ICTs make to:
  - GHG emissions
  - Energy use
  - Waste reduction
  - The conservation of the environment and of natural resources
- Is a relative number (score), computed using a select number of published indicators available in a time series (first tier indicators)



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# Structure of the EERI

- Tiered structure:
  - **ICT Indicators** (Infrastructure, use of ICTs for e-environment, ICT applications, energy quality, human capacity)
  - **Environmental indicators** (Biodiversity, GHG emissions, long-term preparedness, policy and public awareness)
  - **First level EERI** (composite result)



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# Example of indicators and data sources

- ICT Infrastructure indicators:
  - Total number of telephone subscribers (fixed + mobile) per 100 inhabitants
  - Broadband subscribers per 100 inhabitants
  - Internet users per 100 inhabitants
  - International Internet bandwidth per inhabitant (bits/s)

Source: ITU



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# Example of indicators and data sources (*cont.*)

- ICT Applications:
  - Network Readiness Index (NRI)
  - e-Government readiness index
  - Number of secure servers as a measure of the extent of e-commerce
- Sources: World Economic Forum, UNPAN/DESA, SSL Servers



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# EERI's Indicator Selection

- The proposed first level indicators have been selected according to the following criteria:
  - Ease of access
  - Global coverage
  - Frequently updated
  - Numerical, or standardized range of values
  - Relevance to the specific segment of the EERI



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# Methodology

- Each of the two tiers is **normalized** on a scale of zero to ten
- **10= best-in-class** or **worst-in-class** performance (for negative indicators such as GHG emissions) in relation to that segment of indicators
- Weighting is associated with each indicator according to the relative number of indicators in that segment
- In addition, weighting is balanced between the ICT and Environmental segments
- This methodology permits both assessment and prioritization of the areas that are most lacking



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# Sample of EERI Country Results

|                     | First Level EERI | Normalized ICT Summary Indicator | Applications | e-Environment | Energy Quality | Human Capacity | Infrastructure | Normalized Environmental Summary Indicator | Biodiversity | Green-house gases | Long-term preparedness | Policy & Public Awareness |
|---------------------|------------------|----------------------------------|--------------|---------------|----------------|----------------|----------------|--|--------------|-------------------|------------------------|---------------------------|
| Mongolia            | 4.6              | 3.0                              | 4.0          | 3.1           | 2.6            | 3.6            | 1.9            | 6.2  | 3.5          | 8.7               | 6.4                    | 5.7                       |
| Ethiopia            | 4.0              | 2.3                              | 1.4          | 4.7           | 3.7            | 0.9            | 0.4            | 5.6  | 4.4          | 10.0              | 5.9                    | 1.2                       |
| Chad                | 3.4              | 1.4                              | 1.1          | 3.1           | ...            | ...            | 0.0            | 5.4  | 2.3          | 10.0              | 6.6                    | 0.0                       |
| Kyrgyzstan          | 4.3              | 3.5                              | 3.0          | 4.7           | 2.2            | 6.0            | 1.7            | 5.0  | 0.8          | 9.6               | 4.3                    | 5.7                       |
| Chile               | 6.5              | 5.9                              | 6.1          | 8.4           | 5.1            | 5.0            | 4.9            | 7.2  | 4.7          | 8.5               | 7.4                    | 7.5                       |
| Guatemala           | 5.6              | 3.8                              | 4.4          | 4.7           | 4.7            | 2.0            | 3.2            | 7.3  | 8.2          | 9.6               | 7.3                    | 4.1                       |
| Trinidad and Tobago | 7.1              | 5.3                              | 4.7          | 4.7           | 7.9            | 3.6            | 5.0            | 8.9  | 9.7          | 10.0              | 7.8                    | 9.9                       |
| Sweden              | 7.9              | 8.5                              | 9.3          | 8.4           | 7.7            | 9.5            | 7.5            | 7.4  | 1.8          | 7.9               | 8.3                    | 10.0                      |
| Canada              | 7.1              | 8.4                              | 8.8          | 10.0          | 7.5            | 7.6            | 8.4            | 5.7  | 2.1          | 2.0               | 8.2                    | 7.5                       |
| Korea, Republic of  | 6.7              | 7.7                              | 8.6          | 8.4           | 5.9            | 7.8            | 7.9            | 5.8  | 1.1          | 6.1               | 6.6                    | 8.3                       |

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# Interpreting the EERI

- Interpretation should be performed at all three levels of the tiered indicators, in order to identify:
  - Country weaknesses or strengths
  - Specific areas that can be tackled to create gains in either the ICT or environment domains
  - Areas of specific interest that can be isolated and analyzed further
- The EERI results can facilitate also
  - Multi-year analysis to identify trends
  - Cross-comparison with other countries



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## Next Steps

- Circulate the Toolkit draft report and the EERI and obtain feedback
- Support developing countries in conducting e-Environment readiness assessments
- Aid selected countries in developing e-Environment strategies and action plans, in collaboration with partners (see Annex)
- Monitor and evaluate results
- Share best practices with other countries

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## More Information

- ITU Climate Change
  - [www.itu.int/themes/climate/](http://www.itu.int/themes/climate/)
- ITU-D e-Environment home page
  - [www.itu.int/ITU-D/cyb/app/e-env.html](http://www.itu.int/ITU-D/cyb/app/e-env.html)



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