CountryData – Technologies for Data Exchange

DevInfo Data Structure & Mapping Tool
Overview

• DevInfo background
• DevInfo architecture
  – IUS
  – IUS best practices
  – CountryData project findings
• SDMX compliance
  – Mapping Tool
DevInfo

- Software supported and promoted by UNICEF
- DevInfo7 launched in Nov 2012
  - SDMX 2.1 & 2.0 compliant
  - Web base software
  - 9 out of 11 project countries using DevInfo
  - Stable version compare to previous releases
DevInfo Architecture Overview

• IUS: Indicator Unit Subgroup
  – Time series data is stored with the combination of the 3 dimension.
    • Indicator
    • Unit
    • Subgroup: Combination of one or more sub-dimension.
DevInfo Architecture Overview

• **IUS: Indicator** Unit Subgroup

• Indicator:
  – Infant Mortality
  – AIDS Death
  – Malaria Death

• Similar to code list in DSD
  – Contains only Indicator specific values
DevInfo Architecture Overview

- **IUS**: Indicator **Unit** Subgroup
- **Unit**:
  - Percentage
  - Number
  - USD
  - Square KM
- **Similar to code list in DSD**
  - Contains only Unit specific values
DevInfo Architecture Overview

- **IUS**: Indicator Unit **Subgroup**
- SubGroup Dimension:
  - Consists one or more Dimensions (excluding Indicator and Unit dimension)
  - Age, Sex and Location: Example of sub Dimension
  - Each sub dimension contains their own dimension specific values. Similar to code list in DSD
DevInfo Architecture Overview

- **IUS**: Indicator Unit **Subgroup**
- SubGroup Dimension:
  - “Other” Dimension:
    - by default DevInfo provides this dimension to cover any other country specific dimension.
  - Custom Dimension:
    - DevInfo provide functionality to create custom dimension as well which can be used in Subgroup formation logic
DevInfo Architecture Overview

- **IUS**: Indicator Unit **Subgroup**
- **Formation Logic**:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Age</th>
<th>Sex</th>
<th>Location</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 1 Year</td>
<td>Male</td>
<td>Urban</td>
<td>Total Rice</td>
</tr>
<tr>
<td></td>
<td>&lt; 5 Year</td>
<td>Female</td>
<td>Rural</td>
<td>Wheat</td>
</tr>
<tr>
<td></td>
<td>5 – 10 Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SubGroup</td>
<td>&lt;1 Year Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;5 Year Female Rural Urban</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DevInfo IUS Overview

- IUS: **Indicator Unit Subgroup**

Example:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria Deaths Per 100,000 Population Urban 5-10 Year</td>
<td>50</td>
<td>55</td>
<td>40</td>
</tr>
</tbody>
</table>

**Malaria Deaths** Per 100,000 Population **Urban 5-10 Year**
Mapping Tool: Introduction

- Maps DSD CodeLists with IUS
- Provides a means to generate SDMX compatible files which conforms to Data Structure Definition
Mapping Tool: CountryData Code List

- DSD contains collection of Code List
- Following Codelist are used in Mapping Tool:
  - Indicator
  - Unit
  - Age
  - Sex
  - Location
  - Area
- Does not contain the combination of Code List (like subgroup in DevInfo)
### Mapping Tool: CountryData Code List

#### SEX CodeList

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>Not applicable</td>
</tr>
<tr>
<td>F</td>
<td>Female</td>
</tr>
<tr>
<td>M</td>
<td>Male</td>
</tr>
<tr>
<td>T</td>
<td>Both sexes</td>
</tr>
</tbody>
</table>

#### AGE CodeList

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>Not applicable</td>
</tr>
<tr>
<td>000_099_Y</td>
<td>All age ranges</td>
</tr>
<tr>
<td>000_006_M</td>
<td>under 6 month olds</td>
</tr>
<tr>
<td>000_005_Y</td>
<td>under 5 year olds</td>
</tr>
<tr>
<td>000_001_Y</td>
<td>under 1 year olds</td>
</tr>
<tr>
<td>000_018_Y</td>
<td>under 18 year olds</td>
</tr>
<tr>
<td>000_006_Y</td>
<td>under 6 year olds</td>
</tr>
<tr>
<td>010_005_Y</td>
<td>10-14 year olds</td>
</tr>
<tr>
<td>015_005_Y</td>
<td>15-19 year olds</td>
</tr>
<tr>
<td>015_010_Y</td>
<td>15-24 year olds</td>
</tr>
<tr>
<td>015_035_Y</td>
<td>15-49 year olds</td>
</tr>
<tr>
<td>006_054_M</td>
<td>6-59 months old</td>
</tr>
<tr>
<td>006_009_Y</td>
<td>6-14 year olds</td>
</tr>
<tr>
<td>005_013_Y</td>
<td>5-17 year olds</td>
</tr>
<tr>
<td>015_050_Y</td>
<td>15-64 year olds</td>
</tr>
</tbody>
</table>

#### UNIT CodeList

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>Not applicable</td>
</tr>
<tr>
<td>CUR_LCU</td>
<td>Local currency</td>
</tr>
<tr>
<td>USD</td>
<td>USD</td>
</tr>
<tr>
<td>NUMBER</td>
<td>Number</td>
</tr>
<tr>
<td>RATIO</td>
<td>Ratio</td>
</tr>
<tr>
<td>PERCENT</td>
<td>Percent</td>
</tr>
<tr>
<td>KM2</td>
<td>Square kilometers</td>
</tr>
<tr>
<td>T</td>
<td>Metric Tons</td>
</tr>
<tr>
<td>PER_100_LIVE_BIRTHS</td>
<td>Per 100 live births</td>
</tr>
<tr>
<td>PER_100_POP</td>
<td>Per 100 population</td>
</tr>
<tr>
<td>PER_1000_LIVE_BIRTHS</td>
<td>Per 1,000 live births</td>
</tr>
<tr>
<td>PER_1000_POP</td>
<td>Per 1,000 population</td>
</tr>
<tr>
<td>PER_10000_LIVE_BIRTHS</td>
<td>Per 100,000 live births</td>
</tr>
<tr>
<td>PER_100000_POP</td>
<td>Per 100,000 population</td>
</tr>
</tbody>
</table>

#### Location CodeList

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>T Total (national level)</td>
</tr>
<tr>
<td>U</td>
<td>U Urban</td>
</tr>
<tr>
<td>R</td>
<td>R Rural</td>
</tr>
</tbody>
</table>

#### Indicator CodeList

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH_HIV_INCD</td>
<td>HIV incidence rate</td>
</tr>
<tr>
<td>SH_MLR_MORT</td>
<td>Notified cases of malaria</td>
</tr>
<tr>
<td>SE_AD1_1524</td>
<td>Literacy rate</td>
</tr>
<tr>
<td>SE_PRM_CMPL</td>
<td>Primary completion rate</td>
</tr>
</tbody>
</table>
Mapping Tool: DevInfo IUS vs UNSD CodeList

- **Indicator**: Malaria Death
- **Unit**: Per 100,000 Population
- **SubGroup**: Urban 5-10 Year

**SH_MLR_MORT** Per_100000_Pop **U** 005 010 Y

- **Indicator Code**: SH_MLR_MORT
- **Unit Code**: Per_100000_Pop
- **Location Code**: U
- **Age Code**: 005 010 Y
Mapping Tool: CountryData Code List

• Note about following Code List:
  – Nature
  – Frequency
  – Source Type
  – Unit Multiplier

• Mapping done at time series level
Mapping Tool: DevInfo IUS vs UNSD CodeList

• DevInfo version

<table>
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<td>55</td>
<td>40</td>
</tr>
</tbody>
</table>

• SDMX message

```xml
  <Series SERIES="SH_MLR_MORT" UNIT="Per_100000_Pop" GROUP="005_010_Y" SEX="T" LOCATION="U" FREQ="A" SOURCE_TYPE="NA" REFAREA="XYZ">  
    <Obs TIME_PERIOD="1990" OBS_VALUE="50" NATURE="C" UNIT_MULTIPLY="0" TIME_DETAIL="1990" SOURCE_DETAIL="X" FOOTNOTES=""/>
    <Obs TIME_PERIOD="1995" OBS_VALUE="55" NATURE="C" UNIT_MULTIPLY="0" TIME_DETAIL="1995" SOURCE_DETAIL="X" FOOTNOTES=""/>
    <Obs TIME_PERIOD="2000" OBS_VALUE="40" NATURE="C" UNIT_MULTIPLY="0" TIME_DETAIL="2000" SOURCE_DETAIL="X" FOOTNOTES=""/>
  </Series>
```
Best Practices for IUS

- Dimensions design
- Dimensions values
  - Age Dimension
    - Under 1 year
    - Under 5 year
  - Sex Dimension
    - Male
    - Female
    - Both Sex
Best Practices for IUS

• Common Errors
  – Age Dimension
    • Under 5 year
    • Under 1 year
    • Under 5 year Male
    • Under 15 year
  – Sex dimension
    • Male
    • Female
    • Boy
Best Practices for IUS

• Issues with wrong SubGroup values
  – Database design not accurate
    • Leads to duplication of same code in different dimensions
  – Mapping tool can not map mismatched dimensions

• Result:
  – Extra effort requires to generate SDMX files
### Mapping Tool: Case Study

#### Indicator
- Malaria
- Infant mortality
- AIDS deaths

#### Unit
- Per 100,000 Population
- Percent

#### Age
- < 1 year
- < 5 year
- 15 – 24 year

#### Sex
- Male
- Female

#### Location
- Rural
- Urban
- Urban 15-24 year

#### Indicator CodeList
- SH_MLR_MORT
- SH_DYN_IMRT
- SH_DYN_AIDS

#### Unit CodeList
- Per_100000_POP
- Percent

#### Age CodeList
- 000_001_Y
- 000_005_Y
- 015_010_Y

#### Sex CodeList
- M
- F

#### Location CodeList
- R
- U