Regional Workshop on Statistical Literacy:
Increasing Effective Use of Agricultural and Rural Statistics
13-17 July 2015

Session 1.5

Competencies Required for Each of the Components of Statistical Literacy

UNITED NATIONS SIAP
Statistical Institute for Asia and the Pacific

Statistical Literacy

Ability to:

- **Data awareness**
- **Understand** statistical concepts
- **Analyse, interpret and evaluate** statistical information
- **Communicate** statistical information and understandings

Source: United Nations Economic Commission for Europe, Making Data Meaningful Part 4: A guide to improving statistical literacy (http://www.unece.org/fileadmin/DAM/stats/documents/writing/Making_Data_Meaningful_Part_4_for_Web.pdf)

Source: Australian Bureau of Statistics. Statistical Literacy.
(http://www.abs.gov.au/websitedbs/CaSHome.nsf/Home/Statistical+Literacy+Competencies.es)

com·pe·tence

/ˈkämpədəns/

noun
noun: **competency**

1. the ability to do something successfully or efficiently.
   "the players displayed varying degrees of competence"
   synonyms: capability, ability, competency, proficiency, accomplishment, expertise, adeptness, skill, prowess, mastery, talent; More

Source: Australian Bureau of Statistics. Statistical Literacy.
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- **To be able to [have the ability]**
- **… what knowledge, skills, … are needed?**

Basic → **Intermediate** → **Advanced**

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Group Workshop

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Data Awareness

Basic	Intermediate	Advanced
Read the data	Read between the data	Read beyond the data
• Understand the need for data to be collected. • Recognise that there is more than one way to collect data.	• Understand that various factors impact on data quality. • Be aware of how bias can be introduced. • Recognise how to limit errors. • Understand which data collection method is appropriate for a specific question. • Formulate research questions. • Make decisions about the suitability of data.	• Understanding of methodological issues such as sampling technique, survey design, minimising 'noise' etc. • Contextual understanding.

Source: Australian Bureau of Statistics. Statistical Literacy.
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Understand Statistical Concepts

Basic	Intermediate	Advanced
Descriptive	Explanatory	Analytical/Critical
• Recognise basic concepts including mean and range and have some understanding of their meaning. • Understand basic graphs/tables.	• Understand concepts such as variance. • Understanding of chance such as percentages, ratios etcetera. • Choose the correct statistic for the purpose.	• Understanding of probability such as randomness, independence, statistical significance etcetera.

Source: Australian Bureau of Statistics. Statistical Literacy.
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Analyse, Interpret and Evaluate Statistical Information

Basic	Intermediate	Advanced
• Summarise basic data. • Ability to read and produce graphs and tables.	• Recognise relationships among and between variables. • Understand concept of errors. • Produce tables/graphs/maps of data appropriately. • Question the source of data and the methodology used. • Understand the importance of and take into account the metadata.	• Understand which statistical tools are appropriate to context. • Explain more complex relationships such as trends, multi factor variance etcetera. • Predict and generalise from data. • Recognise that trends exist but may not be stable. • Understand how a third variable may explain a relationship between two others. • Assess data quality. • Identify gaps in the data.

Source: Australian Bureau of Statistics. Statistical Literacy.
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Communicate Statistical information and Understandings

Basic	Intermediate	Advanced
• Ability to describe in words what set of data is saying. • Ability to display data in simple graphical and tabular form. • Ability to produce basic statistical summary data. For example percentages, mean etcetera.	• Ability to turn data into information. • Understanding of the statistical conventions of representing data. • Ability to organise and manage data. • Use appropriate format and medium to report data.	• Ability to apply statistical reasoning to support decisions. • Communicate the meaning of statistical terms and concepts to others. • Demonstrate adherence to ethical issues such as confidentiality.

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Thank You!

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