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Agenda Item 4

Issues in the collection of FAO data

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- 1. Challenges and issues
- 2. Measuring data availability and data quality
- 3. Patterns and trends in questionnaire response and completeness (2008-2014)
- 4. Discussions and proposed recommendations



1. Challenges and issues

Challenges: Increasing data requirements; decreasing availability

- Worldwide need for evidence-based decision making on food security, agricultural growth and productivity, food security, poverty reduction and resilience, sustainable growth.
- Substantial increase in data requirements to provide evidence for increasingly complex articulation of policy issues and monitoring needs, such as the SDGs, and the need to establish links between economic, social and environment data domains and policy dimensions.

Issues: non-response and incomplete reporting result in the need for imputations to compute regional/international indicators, resulting in lower quality and less timely data

2. Methodology : Measuring data availability and data quality

• The Statistics Division of FAO (ESS) dispatches 6 annual questionnaires, and collects trade data through electronic trade data files for the following agricultural domains:

Production	Trade Flows	Producer Prices
Fertilizers	Pesticide Use	Land Use

Government Expenditures in Agriculture (GEA)

- Response rates and data completeness indicators are compiled by ESS to measure data availability and data quality for the Asia and the Pacific, and its APCAS member states:
 - Countries in Western Asia and Central Asia are excluded from this analysis.
 - France, the United Kingdom and the United States, though APCAS members, are excluded.
 - For the People's Republic of China, the special administrative regions (SARs) and the province of Taiwan are treated as separate respondents from mainland China.
- Completeness, in turn, is measured by the proportion of FAOSTAT records that are official (i.e. reported by countries).

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Proposed measurement of response and non-response





Data availability / completeness: identifying official records

3. Findings: APCAS members outperform the world in average questionnaire response, while the region performs more poorly.

- ... but results are heterogeneous:
- Average 2008-2014 response rates highest in trade and production, followed by producer prices; inputs (fertilizers, land, pesticides; GEA.
- APCAS Members perform best in responding to the production questionnaire; the RAP region in reporting trade flows.
- RAP region performs better than world average in production only.
- GEA, introduced globally in 2011, has consistently lowest response rates for all three groups.

Average 2008-2014 response rates, by domain





Response rates vary by domain, though always higher for APCAS members compared to the region as a whole.

	AP	CAS mem	bers	All			
	Average responses	Average response rate	Number of recipients	Average responses	Average response rate	Number of recipients	Maximum requests sent
Production	6.3	90%	22	4.6	65%	38	7
Trade flows	4.9	82%	24	4.2	70%	41	6
Producer Prices	4.7	67%	23	3.1	44%	39	7
Fertilizers	3.8	64%	25	2.6	43%	46	6
Pesticides Use	2.4	48%	24	1.6	32%	46	5
Land Use	3.7	61%	24	2.2	36%	47	6
GEA	1.2	39%	23	0.8	26%	41	3

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Ανογοσο κοςποικο	rates hy	domain	and mon	nhorchin	etatue	2008_2014
Average response	Tatts Dy	uvinain	anu mun	incismp	status,	2000-2014

* APCAS had a maximum of 25 potential respondents, while the region as a whole had 48.

- Highest response rates for production and trade flows; lowest for GEA and fertilizers.
- APCAS members considerably outperform world response rates in all domains, except for the 2014 agricultural production questionnaire, whose mail-out was delayed. Many previously perfect respondents did not supply 2014 data yet: Afghanistan, Bangladesh, Iran, Pakistan, Philippines.



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Across sub-regions, production and trade had higher response rates than other domains, but no one sub-region outperformed others





Across time, response rate trends also varied across domains and membership status, led again by production and trade



Classification of reporters, by domain and frequency of responses

Domain	Number of mail-	Frequency of responses				
	outs for 2008-2014 reference years	Never/ Non	Irregular	Frequent		
Production	7	0	1 - 4	5 – 7		
Trade Flows	6	0	1 – 3	4 - 6		
Producer Prices	7	0	1 - 4	5 – 7		
Fertilizers	6	0	1 – 3	4 - 6		
Pesticides use	5	0	1 – 3	4 – 5		
Land use	6	0	1 – 3	4 - 6		
GEA	3	0	1 – 2	3		

APCAS member are more likely to report frequently than nonmembers, who are more likely to never respond.



Reporters by domain, type and Membership status, 2008-2014

APCAS members reporting frequency, by country and domain

	Production	Trade	P. Prices	Fertilizers	Pesticides	Land Use	GEA
Afghanistan	Freq	Irreg	Irreg	Freq	Non	Freq	Non
Australia	Freq	Freq	Freq	Freq	Non	Freq	Freq
Bangladesh	Freq	Non	Irreg	Irreg	Freq	Freq	Non
Bhutan	Freq	Irreg	Freq	Freq	Freq	Freq	Non
Cambodia	Freq	Freq	Irreg	Irreg	Non	Non	Non
People's Republic of China		•					
Mainland	Irreg	Freq	Freq	Freq	Freq	Freq	Irreg
Hong Kong SAR	<u> </u>	Freq	Irreg	Irreg	Freq	Non	Irreg
Macao SAR		Freq	Ū.	Freq	Freq	Freq	<u> </u>
Taiwan		Freq		Non		N/A	
Fiji	Irreg	Freq	Irreg	Non	Irreg	Non	Non
India	Freq	Freq	Irreg	Non	Irreg	Freq	Non
Indonesia	Freq	Freq	Irreg	Freq	Irreg	Irreg	Irreg
Iran (Islamic Republic of)	Freq	Irreg	Freq	Freq	Freq	Freq	Non
Japan	Freq	Freq	Freq	Freq	Freq	Freq	Irreg
Lao People's Democratic Rep.	Freq		Irreg	Irreg	Freq	Irreg	Non
Malaysia	Freq	Freq	Freq	Freq	Freq	Freq	Irreg
Myanmar	Freq	Non	Freq	Irreg	Freq	Freq	Irreg
Nepal	Freq	Freq	Freq	Freq	Irreg	Irreg	Irreg
New Zealand	Freq	Freq	Freq	Freq	Non	Freq	Freq
Pakistan	Freq	Freq	Irreg	Freq	Irreg	Irreg	Irreg
Philippines	Freq	Freq	Freq	Freq	Non	Freq	Irreg
Republic of Korea	Freq	Freq	Irreg	Freq	Irreg	Freq	Freq
Sri Lanka	Freq	Freq	Freq	Irreg	Freq	Irreg	Irreg
Thailand	Freq	Freq	Freq	Freq	Irreg	Freq	Non
Viet Nam	Freq	Non	Freq	Freq	Non	Irreg	Freq



SUCCESSES

- ✓ The People's Republic of China (Mainland), Japan, Malaysia and the Republic of Korea responded frequently in at least 5 domains and irregularly in no more than 2.
- ✓ No member country never responded in more than 3 domains.

CHALLENGES

- Some potential respondents do not receive questionnaires in some domains, which should be addressed.
- Non-response or infrequent response makes estimation/imputation of missing data more difficult, which is compounded by incomplete data.
 - Imputation work is massive and may be based on a weak information base. They require significant time and effort, and may lack the level of knowledge and expertise of country officials about country-specific trends and issues.



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Lack of complete data compounds non-response, and exists in all domains, though higher in some than others

- Completeness rates are highest in trade, and lowest in land use, as measured by % of official records.
- Completeness has been rising for trade and fertilizers, but falling for production.
- Incomplete questionnaires increase efforts by FAO, reduce accuracy and timeliness, and increase risk of inconsistencies.
- Limited imputations for producer prices, pesticides and GEA understate their level of completeness.

Proportion of official records for APCAS members, by domain, 2008-2014



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Explaining patterns & trends for low or declining response/quality

Possible explanations, for discussion:

- *Increased burden*: from FAO questionnaires (length, complexity, number, etc.); from all sources (regional/international organizations, NGOs, etc.)
- **Resource limitations**: lack of expertise; budget/HR constraints at country level; staff turnover/loss of experience
- Lack of data availability: less than annual frequency, or no data collection, in some domains (though this absence should be reported)
- Other issues: Training needs, confidentiality, other?



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3. Possible solutions to address declining response/quality

Country-level:

- Continue move to adopt international classification systems
- Improve metadata reporting (classifications, content, format, frequency, coverage, unit of measure, etc)
- Undertake imputations at country-level

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- Provide targeted on-line/virtual training and workshops at national, sub-region, and regional level
- Develop alternative and more efficient data reporting/ collection means: online/internet, APIs

Both

- Establish single country-level focal point/registry; share data collection and availability calendars
- Establish national/regional data peer-review process
- Improve communication and information requests through FAO regional and sub-regional statisticians

4. Questions and proposed recommendations for discussion

Questions to APCAS Members:

- Data sent to FAO are sometimes in conflict with other national sources or are inconsistent over time. To address this, could APCAS members document any change in time series (different units, different concepts and/or different methodology) with appropriate metadata?
- Questionnaire revisions, while often necessary to improve data quality, seem difficult to manage by countries. What are the reasons for this? Are there better ways to test and manage changes, such as improved explanations?
- In domains with decreasing response rates and/or completeness, what are the causes of this trend? How can this be addressed jointly (e.g. updated contact information, improved communication, additional training, capacity development, etc.)?
- Could countries provide domain-specific information on data availability, and data collection cycles and frequencies, possibly through a data calendar, to help ESS better manage the FAO data collection process?
- For all domains, incomplete or absent metadata impact the ability to interpret results provided by country. How can FAO facilitate improved metadata reporting?



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APCAS members are invited to:

- Clarify challenges in reporting; inform FAO of any non-standard units of measure used; share updated focal/contact points; provide complete metadata.
- For producer prices, inform FAO of the actual price concept monitored.
- For fertilizer use, to propose solutions for improving data reporting when confidentiality issues exist (e.g. provision of aggregates).
- For production, producer price and GEA 2014 non-respondents, to complete and submit the 2014 questionnaires.



It is recommended that:

- To improve response rates and questionnaire completion: a) the FAO regional statistician, FAO HQ, and countries improve coordination mechanisms, such as maintaining up-to-date national focal point(s), endorsing and implementing new methodological guidelines, and peer-reviewing data and methodologies to be published by FAO; b) FAO pilots multiple-mode data collection, such as on-line questionnaires and APIs; c) select member countries volunteer to pilot new data sharing technologies with FAO.
- FAO and member countries explore how best to implement statistical capacity development activities in the areas of data collection, data reporting/compilation, imputation, and data analysis.
- To address the specific FAO questionnaire challenges in the region, countries collaborate with FAO through the regional statistician, to request and support targeted capacity development/training workshops.



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Thank you!

