

Impact of HIV and AIDS on Agriculture and Food Security in the SADC Region:

The Regional Database

*by
Tendayi Kureya*

tendayi@zol.co.zw



Outline

- purpose of the regional database
- process and methods
- building regional consensus on the database platform
- the country and regional databases
- preliminary analysis of the regional data
 - family health characteristics
 - household demographics
 - impact of HIV & AIDS on agricultural productivity
 - marketing of agricultural produce
 - impact of HIV & AIDS on productive assets



purpose of the regional database

- The database was designed to manage information collected on the impact of HIV and AIDS on households from the seven countries participating in the study: Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe.
- National databases were first compiled.

Process and methods

1. Each participating country started with the same draft questionnaire for collecting raw data,
2. Each country then adapted it to suit their local settings,
3. Data was then collected from households using methods agreed at country level

Process and methods (ctd)

4. Data was entered into a national level database,
 5. A structure was proposed for the regional database, noting hypotheses that the database sought to test
 6. A regional workshop was called to make input into the proposed structure and hypotheses.
 7. A participatory database population initiative was then launched.
-

Developing the database

- Its structure was based on the original questionnaire, comparing with those actually used per country, picking on common and relevant variables.
- there were differences among the various questionnaires used, but common ground was possible

Selecting software platforms

- ❑ SPSS was chosen as the software for basic and advanced analysis.
- ❑ Microsoft Excel was included because of its wide usage, and to serve as a platform for moving between applications.
- ❑ Microsoft Access was used as the main storage application.
- ❑ A data entry platform was developed in Epi Info. Epi Info was also used for basic analysis. Epi makes its output as web files.

Building regional consensus on the database platform

- A regional workshop was called in Botswana between 23-24 May 2005 to design indicators and hypotheses that would be tracked.
- This meant that the variables to be included had to, as far as possible, ensure that each of the hypotheses would be testable
- Hypotheses based on the five livelihood assets of: Human, Financial Physical, Social and Natural

Building regional consensus (ctd)

The 9 agreed key hypotheses: HIV and AIDS....

- have led to a decline in agric productivity
- Reduce participation in the market
- Reduce number and quality of livestock
- Increase mobility of HH members
- Increase degradation of environment
- reduce household food consumption
- erode household productive asset base
- erode extension and research services
- Increase dependency ratios



Building regional consensus on the database platform (ctd)

For example....

Impact Area: Production Assets

Hypothesis: HIV and AIDS have led to the erosion of Household productive asset base

Key Variables tracked:

HH resource allocation

HH sources of Income

HH expenditure patterns

the country databases

Table 3: Summary of Country Level Databases

Item	Bots	Les	Nam	RSA	Swa	Zam	Zim
Database Platform	SPSS	SPSS	SPSS	Excel	SPSS	SPSS	SPSS
Sample size	157	210	144	48	847	203	320
Number of Variables tracked	138	899	1422	110	184	671	1265
Variables In regional database**	31	68	58	122	78	34	138

** *The regional database has a total of 158 Variables*



the regional database








- ❑ Developed using Epi Info 2000, that uses Microsoft Access Database
 - ❑ Developed from the national level SPSS databases, mostly manually.
 - ❑ Has 167 variables and 1930 records from 7 countries.
 - ❑ Variables have household data on demographics, health, income, expenditure and impacts of HIV and AIDS.
 - ❑ Integrated framework within Epi Info allows for analysis and reporting.
-

Example of variables collected: demographics

Variable description	Variable name	Whether Countries collected data						
		NA M	BOT	ZIM	SWA	LES	RSA	ZAM
Country	Country							
District or Region	District	yes	yes	yes	yes	yes	yes	yes
Age Of Household Head	AgeOfHeadofHH	yes	yes	yes	yes	yes	yes	yes
Sex of Household Head	SexofHeadofHH	yes	yes	yes	yes	yes	yes	yes
Family name	FamilyName	no	no	yes	yes	no	yes	no
Who is/are the head(s) of this family?	FamilyHead	yes	yes	yes	yes	no	yes	no
How long has the family been in agriculture (Years)?	YearsFarming	no	no	no	yes	yes	yes	no
Total household size	TotalHouseholdSize	yes	yes	yes	yes	yes	no	yes
Dependancy Ratio	Dependency	yes	no	yes	yes	yes	yes	yes



preliminary analysis

Country	Number of samples	Percent	
Botswana	157	8.1%	
Lesotho	210	10.9%	
Namibia	144	7.5%	
South Africa	48	2.5%	
Swaziland	847	43.9%	
Zambia	203	10.5%	
Zimbabwe	320	16.6%	
Total	1929	100.0%	

preliminary analysis

- ❑ In Zambia about 72% of the households interviewed indicated they have been affected by HIV & AIDS related illnesses. The corresponding figures for the other countries were:
 - ❑ Zimbabwe 24%
 - ❑ Lesotho 2%
 - ❑ Botswana 34% and
 - ❑ South Africa 45%

preliminary analysis

Table 4. Average number of HIV & AIDS related deaths

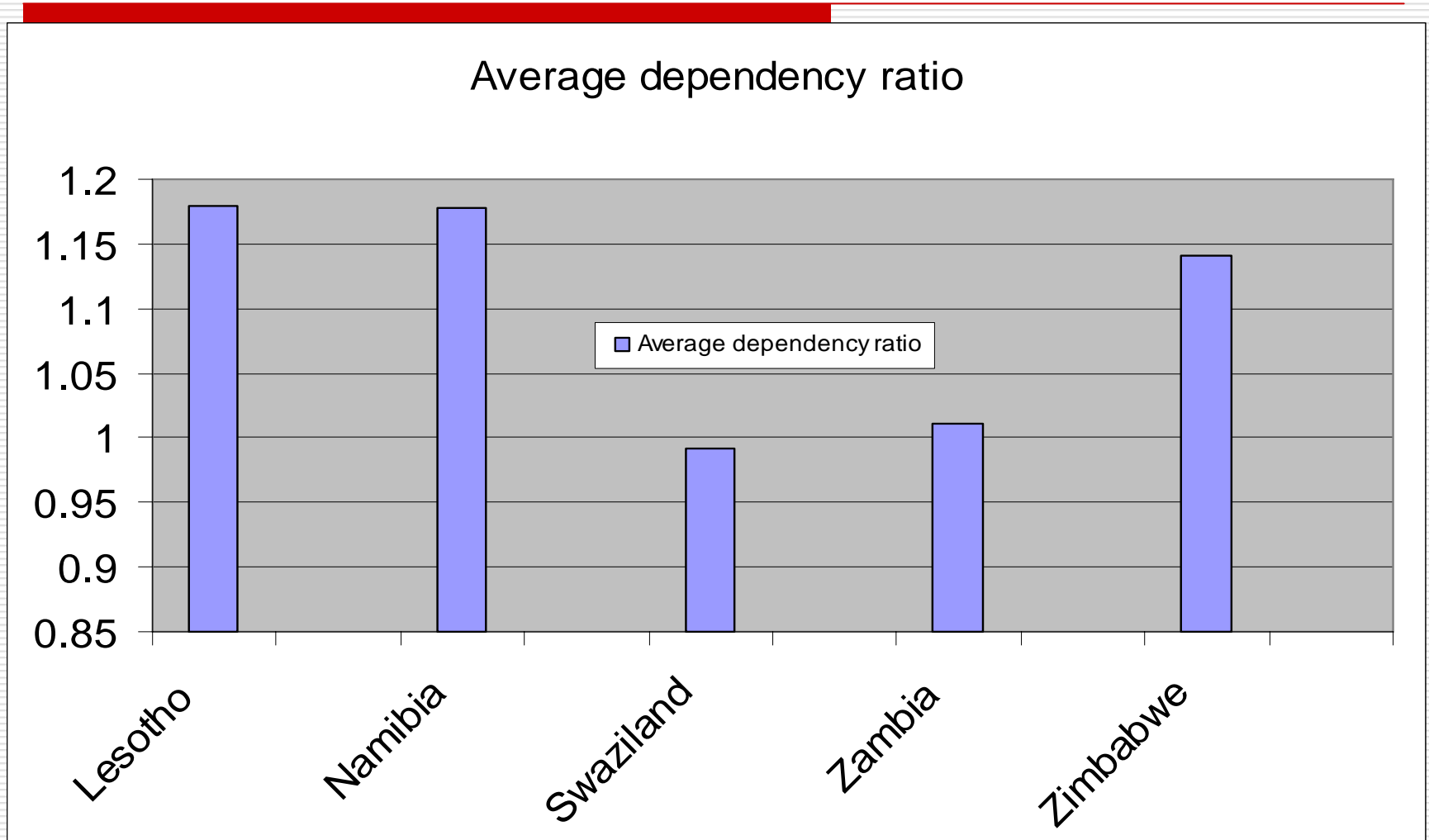
	Number of households responding	Mean HIV & AIDS deaths	Std. Deviation
Zimbabwe	318	0.9	1.1
Zambia	203	0.6	0.8
Lesotho	78	1.0	0.2
South Africa	37	0.1	0.5

preliminary analysis

Table 5. Percent of households indicating types of Illnesses Prevalent

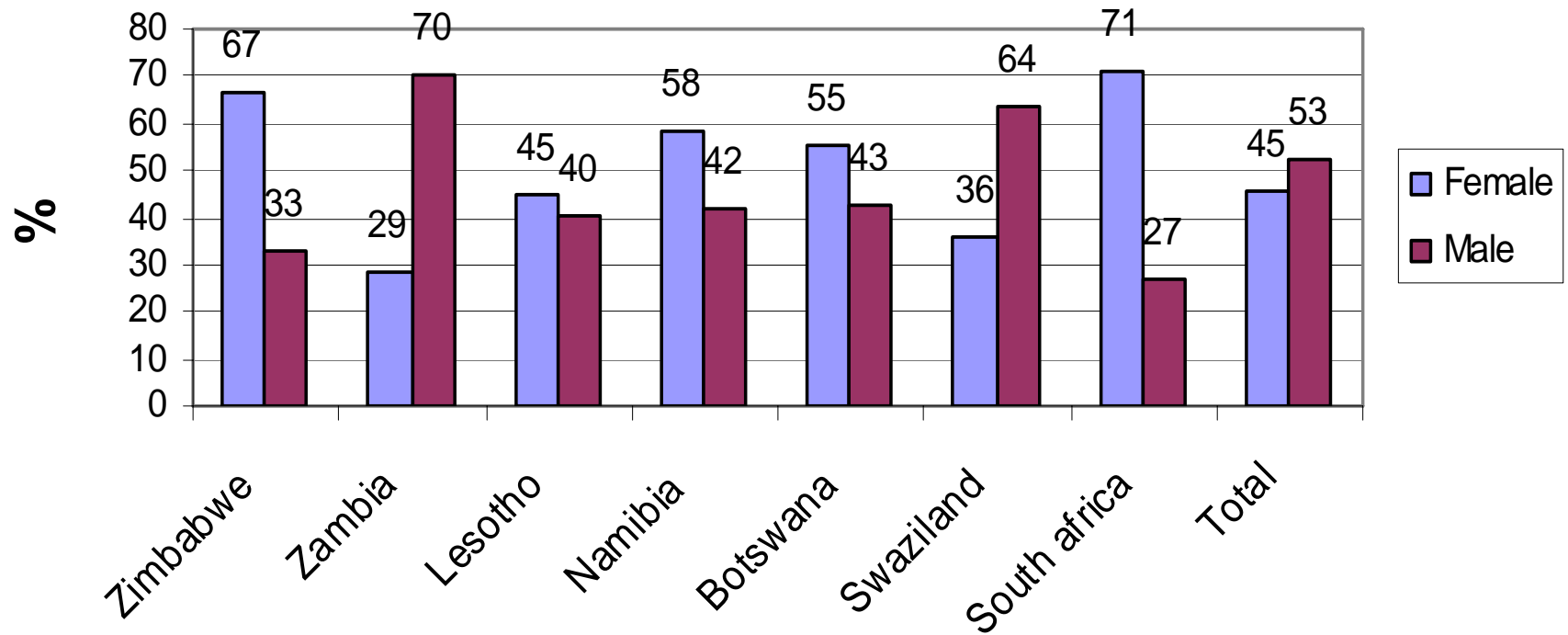
	Tuberculosis	Cancer	Asthma	Swollen Limbs	Diarrhoea	Malaria
Zimbabwe	41.9	1.6	6.3	8.8	33.1	5.9
Zambia	16.7				4.9	12.8
Botswana	2.5					
Swaziland	32.8	6.0		24.2	75.4	
South Africa	20.8	2.1	10.4		6.3	
<i>database average</i>	23.8	3.0	1.3	12.1	39.3	2.3

Household Characteristics



Household Demographics

Gender of Household Head



Household Demographics

Table 5 Average Household sizes

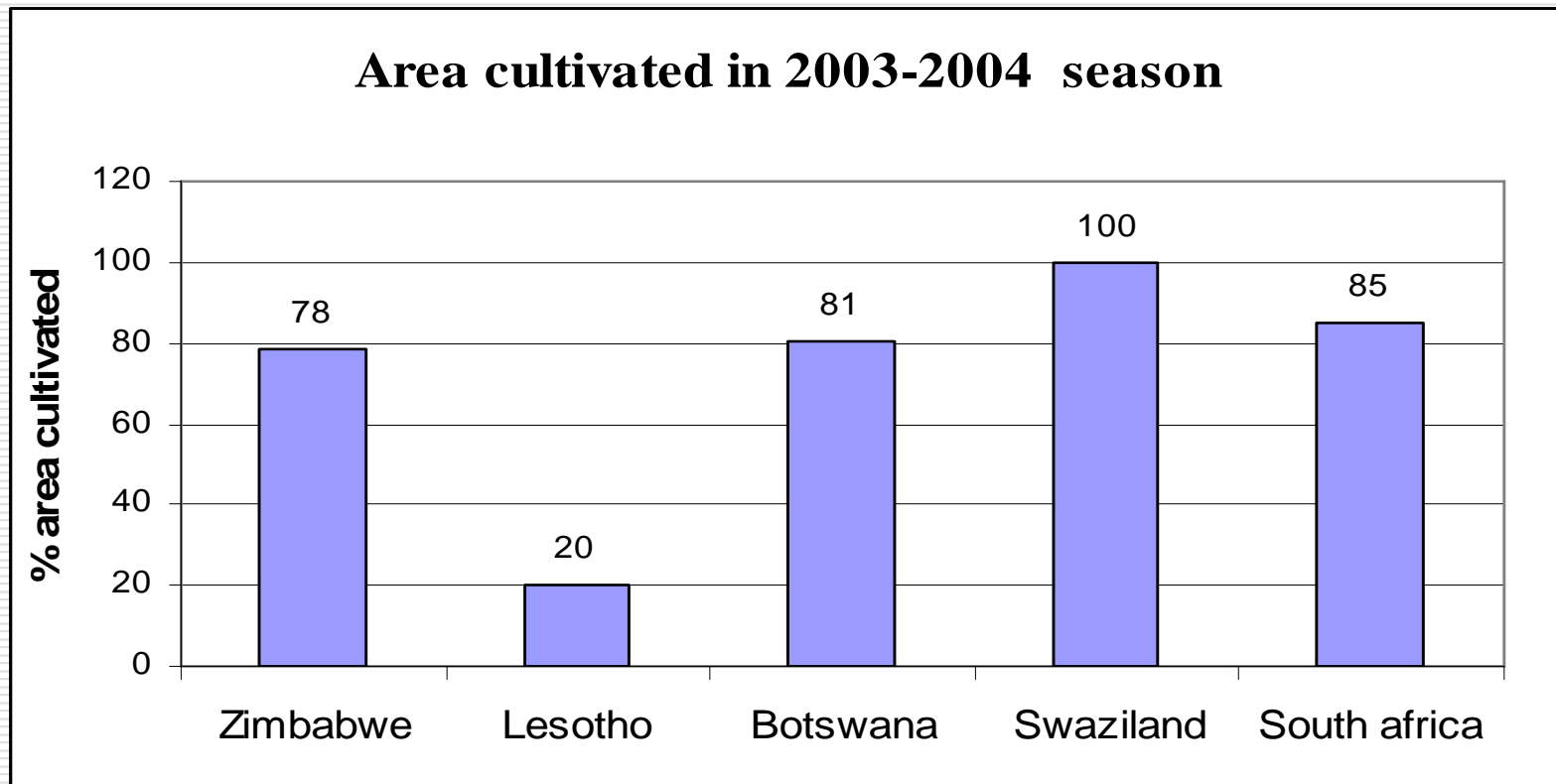
	N	Mean Household size	Std Deviation	S.E Mean
Zimbabwe	320	5.6	2.2	0.1
Zambia	203	7.1	2.9	0.2
Lesotho	210	5.1	2.2	0.2
Namibia	144	7.8	4.0	0.3
Botswana	156	8.0	16.8	1.3
Swaziland	847	5.7	1.4	0.0

Field sizes

Table 7. Mean Total Field Size (ha)

Country	N	Mean	Std. Deviation	Std. Error Mean
Zimbabwe	320	1.1	0.6	0.0
Zambia	201	2.5	2.8	0.2
Lesotho	210	0.9	2.0	0.1
Botswana	138	5.5	6.0	0.5
Swaziland	574	3.5	2.5	0.1
South Africa	48	1.1	1.3	0.2

Area cultivated



Agricultural production

Table 8. Arable land ownership and cultivation among different households in the study sample.

	Gender of Family head	N	Average for study sample	Std. Deviation	Std. Error Mean
Field size	Female	704	2.1	2.9	.11
	Male	749	3.0	3.2	.12
% land cultivated	Female	622	77	50	2.00
	Male	578	87	93	3.86

Crops grown

Table 9. Crops grown in different countries in 2003-2004 production season

Country	millet	Rapoko	groundnut	sweet potato	maize	cotton	beans	vegetables
Zimbabwe	2%	10%	19%	6%	96%		10%	1%
Zambia	10%		27%	19%	90%	14%		
Lesotho		18%			42%		19%	25%
Namibia		58%			37%			2%
Swaziland	0%		4%	7%	69%	1%	5%	11%
South Africa			10%		94%		79%	25%
Total	1%	8%	8%	6%	65%	2%	8%	8%



Agric Inputs remove zambia

Table 10. Input application rates in a few identified countries

Input	Country	N	Mean per ha (kgs)	Std. Deviation	Std. Error Mean
Maize seed	Zimbabwe	301	17.2	25.1	1.4
	Zambia	203	36.0	153.5	10.8
	South Africa	0			
Basal fertilizer	Zimbabwe	184	58.5	43.1	3.2
	Zambia	0	.	.	.
Top Dressing fertilizer	Zimbabwe	256	332.0	4371.6	273.2
	Zambia	0	.	.	.
	South Africa	48	32.7	49.6	7.2

Crop sales zambia???

Table 11. Value of sold crops and livestock

	Value of sold crops (US\$)	Value of sold livestock (US\$)
Zimbabwe	34.50	7.90
Zambia	0.02	
Lesotho	6.40	25.63
Namibia	9.35	49.91
Botswana		62.93
Swaziland	304.97	338.38
South Africa	19.81	

** Local currency converted to US dollar equivalence Exchange rate used are as follows Zimbabwe Z\$5200-US\$ (parallel market rate early 2004), N\$7-US\$, SAR 7-US\$, K4300-US\$, SwL6.8-US\$, Lm 5.8-US\$



Livestock

Table 12. Livestock ownership in the study sample

Country	Cattle	Donkeys	Pigs	Goats	Sheep	Poultry
Zimbabwe	1.1	2.3	2.0	2.3	0.0	6.1
Lesotho	2.8	1.7	1.8	7.7	2.3	5.0
Namibia	17.5	5.9	5.3	19.4	29.4	14.4
Swaziland	14.4	4.0	22.5	9.7	19.5	15.0

Reported impacts

Table 14. Reported losses due to HIV and AIDS

% of Households reporting loss of ...	Livestock sold	Farming time lost	Financial resources diverted	Farming implement sold
Zimbabwe	19.4	68.1	54.1	0.9
Zambia	0.5	24.1	2.0	
Lesotho	1.4			61.0
Botswana	13.4	51.6		
Swaziland			92.4	3.8
South Africa		6.3	2.1	
<i>Sample average</i>	<i>4.5</i>	<i>18.2</i>	<i>49.8</i>	<i>8.4</i>

Some conclusions...

- Based on the hypotheses being tracked...

1. There is quantifiable evidence of changes in household characteristics

- The mean household size was 6.1 with the following general observations:
 - About 5% of all households were headed by children under 18 years (The figures were 6.4% for Botswana, 3.9% for Lesotho, 1% for Namibia, 1% for South Africa, 2.5% for Swaziland, 6% for Zambia and 3.8% for Zimbabwe)
 - 30 % of households had 3 or more dependents. Of these, Zambian, South African and Namibian households had the largest numbers.
 - 65% of Households reported field sizes of under 2 ha. There was no correlation between field size and amount of fertilizer used.
 - 18.2 % of Households reported that HIV and AIDS illnesses and funerals deprived them of farming time.
 - 75% of households have a dependency ratio greater than 1. ie have more dependents than economically active members.



Reduces number and quality of livestock...

- 65.2 % of households own less than four head of cattle as follows:
 - Lesotho 87.5
 - Namibia 21.8
 - South Africa 97.9
 - Swaziland 1.5
 - Zimbabwe 92.2

***The data for Botswana and Zambia was not yet available at the time of analysis

Reduces participation in the market:

- *57.2% of households own at least one head of cattle, 11% ever sold a beast in the last year. (excl. Botswana)*
- *9% of households that ever sold a head of cattle now have none.*
- *65.4% of households grew maize, and 44% sold the crop. Median Revenues were in the order of less than 100 Pula for Botswana, less than 100 Maluti for Lesotho, less than N\$100 for Namibia, and less than Z\$60,000 for Zimbabwe. Generally < US\$20*

Increases morbidity of HH members:

- *70% of 571 households reported at least one serious illness in the last three years. 51.3% indicated an illness associated with HIV/AIDS.*

Constraints

- ❑ The regional database used country level databases that were not speaking to each other well.
- ❑ The survey questionnaires carried too much detail
- ❑ Some data from the country level was dirty.
- ❑ The construction of the database was slow because of input from a number of stakeholders.
- ❑ The sample sizes used at the country level differed.
- ❑ Not all the countries submitted their data in time.
- ❑ Not all the countries attended the workshops set up by FARNPAN to harmonise the data.
- ❑ Analysis was subject to errors in the data provided, and any other errors that may have resulted during data manipulation.

And finally...

Thank you!

