



Technical Assistance Consultant's Report

Project Number: 41126
September 2011

Nepal: Strengthening Capacity for Macroeconomic Analysis (Financed by the Technical Assistance Special Fund)

This consultant's report does not necessarily reflect the views of ADB or the Government concerned, and ADB and the Government cannot be held liable for its contents. (For project preparatory technical assistance: All the views expressed herein may not be incorporated into the proposed project's design.)

Asian Development Bank

Prepared by
Russel Freeman
Consultant

TABLE OF CONTENTS

	Page
Background.....	1
Mission Activities.....	1
Conclusion.....	2
Annex 1 Updated Work Program	
Phase 1: Quarterly GDP in Constant Prices.....	3
Timetable.....	10

Background

This project was established in August 2009 with the objective of providing technical support in developing a system of quarterly national accounts (QNA) in the Central Bureau of Statistics (CBS). The inception mission¹ was undertaken from October 20-November 7, 2009, the second mission took place from June 16-29, 2010² and the findings of the third mission—undertaken from March 28-April 8, 2011—are outlined in this report.

Mission Activities:

The mission reviewed all work done since the previous mission, made suggestions and changes as necessary and updated the work plan. The work was focused with two or three staff as a number are involved with the Population Census which is scheduled for June 8th. This was not a serious constraint as the national accounts head was available throughout the mission and he will be responsible for directing his staff in the final stages of the QNA development.

Open forum sessions were held each day with available national accounts staff covering a range of issues including:

- Review of surveys undertaken, such as:
 - fish farms,
 - informal manufacturing, and
 - transport entrepreneurs
- Settling on the use of the work-put-in place approach for agriculture and finalizing the analysis of the farm cost survey undertaken prior to this project.

The main industry issues are outlined in the first column of the work plan included in the Annex. There have been some minor updates but essentially the issues outlined in the second progress report are still relevant and national accounts staff should refer to these as they prepare the final QNA estimates.

A number of broader issues concerning QNA compilation were also discussed:

- The need to ensure that data analysis is logical and that the conclusions are in keeping with economic reality.
- When averaging two or more series, weighted averages should be used, not simple averages.
- National accounts staff should be encouraged to work in pairs more experienced/less experienced. This helps both staff training and ensuring continuity of national accounts production when staff leave the section.
- Allocating annual data in proportion to the indicator series creates a “step problem” between the last quarter of one year and the first quarter of the next. This is solved by the use of a benchmarking program.

¹ For an expanded background to the project refer to the *Inception Report, November 2009*.

² The findings of that mission are reported in *Progress Report, July 2010*.

- The guidelines for preparing good quality spreadsheets were outlined in the last progress report and have been repeated below. The current set of files has not taken these guidelines into account and it is crucial that these be followed. This will achieve two objectives:
 - A logical, documented set of files will be created for the CBS national accounts institutional memory, and
 - The consultant will be able to review files from his home base, which is essential if QNA production is going to adhere to the current timetable.

Conclusion:

This, the third mission in the project was delayed by five months by staffing losses and the diversion of national accounts staff to other activities including additional data collections. It is now imperative that these staff focus on the task of completing QNA estimates for all industries following the guidelines and suggestions provided. As each file is completed to “final draft” level—as defined on page 9 below—it should be sent to the consultant for review and further comment as necessary. Each industry estimate needs to be completed before the next mission planned for the second week in June 2011. This is the only practical way in which the deadline can be met.

Annex 1. Quarterly National Accounts Work Plan Revised 8/4/11

Phase 1: Quarterly GDP in Constant Prices

Industry	Quarterly Indicators	Improvements to annual methodology	QNA Status/Comments
<p>Agriculture, Forestry and Fishing <i>Food crops</i> (includes other)</p> <p><i>Livestock</i></p> <p><i>Forestry</i></p> <p><i>Fishing</i></p>	<p>Opted for cost approach. This combines farm costs surveys with crop calendar to estimate costs per quarter for the main crops of paddy, wheat, maize and millet. (<i>SNA 93</i> approach.)</p> <p>Cycle of births, animal growth and production of meat animals, milk, wool, eggs. All expert opinion. (<i>Check milk</i>)</p> <p>Will be a combination of forestry stock change—steady growth less removals—and removals. <i>No stock change available yet.</i></p> <p>Treat firewood separately.</p> <p>Expert opinion provided.</p>	<p>Add estimates for stock changes to livestock and forestry estimates.</p> <p>CBS running own crop survey, essentially to bridge the gap between MOAC release and date needed. 2 weeks. <u>Check on projection data, required for cost approach.</u></p> <p>Firewood based on NLSS would include illegal removals. <i>Deforestation an issue, so stock change should be negative.</i></p>	<p><u>Draft QNA file ready.</u></p> <p>Initial file prepared by consultant during mission. Will be completed to <u>draft</u> stage.</p> <p><u>No Draft yet.</u></p> <p><u>Draft QNA file ready.</u></p>
<p>Mining & Quarrying <i>Mining</i></p>	<p>Annual data not available quarterly nor was a seasonal pattern obtained despite visiting Department of Mining and Geology (DMG) staff.</p>	<p>Estimates based on a 1988/89 survey which should be updated.</p>	<p><u>No Draft yet.</u></p>

Industry	Quarterly Indicators	Improvements to annual methodology	QNA Status/Comments
<i>Quarrying</i>	The updated manufacturing production index (MPI) provides quarterly measures of sandstone and gravel. <i>Better than using the whole construction indicator.</i>		
Manufacturing <i>Large</i> <i>Small scale (1-9 persons)</i> <i>Households</i>	<p>The recalculated MPI is available quarterly. [Calculate at detailed level]</p> <p>Ditto.</p> <p>This component is extrapolated forward using population growth. Can be interpolated.</p>	<p>Improved MPI changes this industry. VAT data are highly relevant to this industry and have much wider coverage than the MPI. A major revision is necessary. Check the small-scale growth as it is <u>only an assumption that it follows the MPI.</u></p>	<p><u>Draft</u> QNA file ready for review. <i>Based on 2001/2 MPI and calculated at a detailed level. (Check)</i></p> <p><u>Draft</u> QNA file ready.</p> <p><u>No Draft</u> but can be interpolated.</p>
Electricity & Water <i>Electricity</i> <i>Water</i> <i>Bio-gas</i>	<p>The production volume data used for the annual measures are available quarterly.</p> <p>Being investigated with Nepal Water Supply Corporation (NWSC) staff.</p> <p>This small component can be interpolated or follow collected data.</p>	<p>Don't deflate when volumes available directly.</p> <p>Quarterly data don't track the annual figures—<u>investigate why.</u></p>	<p><u>Draft</u> QNA file ready. <i>Volume data used for quarterly.</i></p> <p><u>Draft</u> QNA file ready.</p> <p><u>Draft</u> QNA file ready.</p>

Industry	Quarterly Indicators	Improvements to annual methodology	QNA Status/Comments
<p>Construction</p> <p><i>Pakky Construction (Capital Intensive)</i></p> <p><i>Kachhy Construction (Traditional)</i></p> <p><i>Other</i></p>	<p>The suggested annual methodology can be reproduced on a quarterly basis.</p> <p>This smaller component is extrapolated with rural population growth. Can be interpolated quarterly, but seasonal construction patterns due to weather should be considered.</p> <p>Can be interpolated.</p>	<p>CBS uses its own price index. Should consider using the NRB Wholesale Price Index (WPI) and constant price imports when available. Currently domestic materials are inflated by a materials index, then this plus imports are deflated by the CBS index. Not sound. Better to have 2 constant price series and inflate.</p> <p>Agriculture land improvement, should be excluded from the estimate.</p>	<p><u>Draft</u> QNA file ready. <i>Done in a single estimate using the improved methodology recommended for the annual.</i></p>
<p>Trade, Restaurants and Hotels</p> <p><i>Trade</i></p>	<p><i>Current annual methods are based on the flow of goods through the distribution industry. These are:</i></p> <ol style="list-style-type: none"> 1) Agriculture products 2) Manufactured products 3) Imports of specific goods. <p><i>The latter two are available quarterly. Agriculture products sales are trickier as they <u>don't follow the cost or the harvest approach</u>. Some seasonality due to festivals.</i></p>	<p><i>This industry will be partially covered by VAT data which should be included in the analysis. Deflating VAT-based figures with a mix of the CPI and the WPI will improve the constant price estimate.</i></p>	<p><u>No Draft yet.</u></p>
<p><i>Restaurants</i></p>	<p>Restaurant numbers available quarterly. Combine with short term indicators: tourist arrivals and local population for non-tourist restaurants.</p>	<p><i>This component should be well-covered by VAT data which should be incorporated.</i></p>	<p><u>Draft</u> QNA file ready</p>

Industry	Quarterly Indicators	Improvements to annual methodology	QNA Status/Comments
Restaurants	Restaurant numbers are available quarterly. Combine with short term indicators: tourist arrivals and local population for non-tourist restaurants.	<i>This component should be well-covered by VAT data which should be incorporated.</i>	<u>Draft</u> QNA file ready
Hotels - <i>Star</i> - <i>Non-Star</i> - <i>Local</i>	CBS surveys on bed occupancy, supplemented by tourist arrivals data. Small component, moved with population growth. Can be interpolated.	Drop the CPI meal component deflator approach. Use quantity indicators, hotel accounts, and derive the deflator implicitly.	<u>No Draft yet.</u> <i>Discussion on the 4Qs of the bed-occupancy data vs. tourist arrivals. Most tourists stay in hotels so the former should show the same trend as the latter.</i>
Transport, Communication & Storage Land Transport (freight) (60% weight) (passenger) Services to Transport (5%) Air Transport (15%) Communication (15%) Storage (~0.2%)	CBS survey on new vehicle registrations plus fuel consumption data. (Both rejected) CBS Survey with results yet to be analyzed Annual methodology can be reproduced quarterly. Passenger/freight volume data are now available. New data available quarterly. Can be interpolated.	For road freight so an improvement would be to track the growth of goods typically carried. Volume data on numbers of users etc. should be used. New data included in annual estimate.	<u>No Draft yet.</u> <i>Goods approach attempted but steady growth preferred</i> <u>No Draft yet.</u> <u>No Draft yet.</u> <i>Tourism component will show seasonality</i> <u>No Draft yet.</u> <i>New data have been collected since last mission</i> <u>No Draft yet.</u> <i>Beware of fixed weight index as mobile phones will be growing faster than the rest. Use volumes—paid-minutes—rather than numbers of subscribers.</i>

Industry	Quarterly Indicators	Improvements to annual methodology	QNA Status/Comments
Finance, Insurance, Real Estate <i>Finance</i>	Revised annual method is available quarterly. [Any deflation method should be cross-checked with other data. <u>Discuss finance industry indicators with NRB.</u>]	<i>Original preparer of this estimate has been transferred, the work needs to be fully reviewed. <u>Check FISIM treatment.</u> Little logic in the deflator—which includes the CPI—used.</i>	<u>No Draft yet.</u> Annual not yet revised.
<i>Insurance</i> <i>Real Estate</i> <i>Owner-occupied</i> <i>Business Services</i>	Little seasonality. CBS surveys in the field—covering real estate agents—may be useful. The annual growth—which follows population—can be interpolated quarterly. The annual method is based on changes in the numbers of business entities. This suggests little seasonality, but the review may show otherwise.	Current method is to extrapolate base year data with policy numbers. Similarly, extrapolated with real estate company numbers.	<u>Draft QNA file ready</u> <i>Steady growth</i> <u>Draft QNA file ready</u> <i>Steady growth</i> <u>Draft QNA file ready</u> <i>Steady growth</i> <u>No Draft yet.</u> <i>New data have been collected since last mission</i>
Community, Social and Personal Services <i>Government Administration</i> <i>Education-Government</i> <i>Education-Private</i>	5-year series of days open for business prepared. Apply in conjunction with estimated growth. Similarly, 5-year series of days open for education prepared as an indicator.	Enrolment data used for private sector education.	<u>Draft QNA file ready</u> <u>Draft QNA file ready</u>

Industry	Quarterly Indicators	Improvements to annual methodology	QNA Status/Comments
<i>Health-Govt. Health-Private</i>	The CBS survey of hospitals admissions/outpatient numbers may show a pattern which is expected to show weather-induced variations.	Health and Education should be published separately for both government and private sectors.	<u>No Draft yet</u>
<i>NPISH</i>	Assume steady growth.		<u>Draft QNA file ready</u> <i>Steady growth</i>
<i>Personal Services</i>	Assume steady growth.		<u>Draft QNA file ready</u> <i>Steady growth</i>
FISIM	Should be consistent with finance industry estimates.	Annual estimates appear to be in error, and should be checked. Growth rates are definitely inconsistent.	<u>No Draft yet</u>
Product Taxes	Quarterly estimates will follow from new annual methodology.	Currently current price figures deflated with GDP deflator. Should use base year estimates extrapolated with quantity indicators.	<u>Draft QNA file ready</u>

SUMMARY OF TERMS USED IN THE WORKPLAN ABOVE

Draft QNA file ready:

This means that an initial 5-year series of QNA has been prepared—subjected to benchmarking and seasonal adjustment, if appropriate—but still needs to be reviewed and critically analyzed.

- Does it reflect reality?
- Is the quarterly indicator a good predictor of the annual?

No Draft yet:

This means that while indicators may have been collected, final decisions have to be made, and draft series prepared, benchmarked, and seasonally adjusted before a draft is ready.

There are no files meeting the ***Final Draft*** criteria.

Final Draft:

This means that an initial 5-year series of QNA has been prepared—subjected to benchmarking and seasonal adjustment, if appropriate—but still needs to be reviewed and critically analyzed.

- Does it reflect reality?
- Is the quarterly indicator a good predictor of the annual?
- What other indicator options were considered and rejected? Why?

PLUS the file has been prepared according to the guidelines included in last mission report, namely:

File Format:

As the QNA system is developed, it is important that the spreadsheets used for calculating the national accounts estimates—whether quarterly or annual—be set up efficiently and consistently, to provide well documented institutional memory.

Following are some useful guidelines:

- *Give files clear, unambiguous names*
- *Store them in a national accounts directory and not personal directories*
- *Tables should always have headings, units, formula, and external data sources clearly identified*
- *Process data in series format*
- *Keep calculations clear and simple*
- *Calculate at greatest possible level of detail*
- *Keep data separate from formula as this makes revisions and rebasing far easier*
- *Separate spreadsheets within the same workbook should be linked*
- *Very useful to have a summary of data on the upper left for ease of reference*
- *Similarly useful to have methodology notes on the upper right, both for “institutional memory” and for sources and methods notes*

The importance of setting up files in this systematic manner was demonstrated during the mission. When reviewing draft files—which had been otherwise well done as they were both benchmarked and seasonally adjusted—it was noted that the tables had no headings, no units, no links to original data sources, no acknowledgment of sources, and no methodology notes. Consequently, substantial errors were discovered—constant price data and current price data had been mixed up. This can very easily happen to any statistician, unless they prepare their files in a systematic, clearly-marked manner.

Timetable: As at 8/4/11

Date		Action	
		Lead Consultant	National Accounts Section
2009	<i>October</i>	Inception mission : October 20-November 17 Staff training on QNA methodology. Prepare work program.	
	<i>November</i>		
2010	<i>December</i>	Provide backup support as required from home office.	With the assistance of the local expert, all the above activities marked with bullet points in the right-hand column should be undertaken by October 2010 when the third mission is planned.
	<i>January</i>		
	<i>February</i>	Progress report. (February 15)	Prepare draft progress report. (<i>*Progress report received on schedule.</i>)
	<i>March</i>		
	<i>April</i>		
	<i>May</i>	**	<i>Planned May 15 mission delayed by one month.</i>
	<i>June</i>		
	<i>July</i>	June 15: Follow-up mission, subject to adequate progress by CBS	Mission activities: Prepare initial estimates as far as possible. Review work plan and timetable for completion of constant and current price estimates. Prepare report.
	<i>August</i>	Provide backup support as required from home office.	Undertake activities delineated in project work plan.
	<i>September</i>	Progress report. (September 15)	Prepare draft progress report. [Completed: little progress due to redeployment of staff] Prepare draft methodology notes. [Not done.]
<i>October</i>	October 15: Final mission, to complete initial constant price quarterly estimates. Prepare final report.	Mission delayed due to staffing and other difficulties.	

Date		Action	
		Lead Consultant	National Accounts Section
2010	<i>November</i>		
	<i>December</i>		
2011	<i>January</i>		
	<i>February</i>		
	<i>March</i>	28 March penultimate mission, to review progress to date and to plan for the completion of constant price QNA.	Complete final draft estimates for all industries and send files to consultant for review.
	<i>April</i>		Amend as necessary. Files to include brief methodology notes—as instructed—which will form the basis of the sources and methods paper to accompany the final report.
	<i>May</i>	Review at home draft work as provided by NA staff.	DEADLINE MAY 30!!!!
	<i>June</i>	Second week of June: Final mission, to complete initial constant price quarterly estimates. Prepare final report.	Mission activities: Final review of estimates for constant price QNA from 2004/5. Assist with preparation of publication Report to include timetable for quarterly current price and (if feasible) expenditure estimates