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# Qatar Supreme Council for Family Affairs Database of Social Indicators

## Final Report

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Prepared for the Qatar Supreme Council for Family Affairs



RAND-QATAR POLICY INSTITUTE

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## Summary

The Qatar Supreme Council for Family Affairs, established in 1998 under the authority of His Highness the Emir, is charged with reviewing and proposing legislation, promoting policies, adopting plans, implementing projects and programs, enhancing the role of national institutions, and disseminating information related to all aspects of family affairs in Qatar. The mission is defined through nine goals pertaining to the role and care of families, the challenges facing families, the goals of international charters relating to family matters, the empowerment and participation of women in society and in the labor market, the status of people with special needs, and the challenges facing youth. Six operating departments carry out these goals, each focusing on a specific population in Qatar: the family, women, children, youth, the elderly, and people with special needs

In support of its mission, the Qatar Supreme Council for Family Affairs is developing a social indicators database system. The database will provide essential information for assessing the well-being of families in Qatar, planning future activities, monitoring progress toward departmental goals, and setting policy priorities. A centralized database will provide an efficient mechanism for supporting the activities of the QSCFA and will assist in coordinating work across departments with overlapping interests.

This document provides the final results of an analysis in support of this database effort by the RAND-Qatar Policy Institute. In this report, we focus in particular on the following questions:

- What are the goals of the database system and how do they relate to the objectives of the QSCFA?
- What indicators are best suited to supporting the goals of the database system and how should they be measured?
- Are data available to compute the indicators?
- What architecture will best support the database system?

To address these questions, we undertook a review of the QSCFA's goals and the current mission and potential future activities of the QSCFA departments, studied the architecture and indicators included in the prototype database, and

reviewed the major available sources of data to construct most of the indicators of interest. This summary highlights key recommendations distributed throughout the chapters of this report. All recommendations featured here are summarized in Table S.1.

## Database Objectives

The content and objectives of the QSCFA database can be viewed in terms of both short-term and long-term benefits with regard to the work of the Council as summarized in Figure S.1. The most immediate goal is to create a database of summary indicators that will support the analysis, planning, and decisionmaking of the QSCFA and its various departments. For example, the database of summary indicators may be used to

- track progress over time in a given domain for a given outcome,
- compare alternative measures of a given indicator,
- examine indicators for population subgroups or geographic areas, and
- generate statistics for QSCFA reports or for international agency reports.

In the short-term, most indicators stored in the database will be generated from data collected by other agencies in the Qatari public sector, such as the Planning Council or other government departments.

Over the longer-term, the database content and objectives may be expanded in order to provide even greater support of analysis, planning, and decisionmaking. Beyond monitoring trends or identifying gaps between current achievement and targets, there may be an interest in determining the causes of the observed trends or gaps in progress, identifying subpopulations that are particularly affected, and formulating and evaluating policy interventions. Those objectives will require analytic tools and data that go beyond what a database of summary indicators can provide.

In particular, we anticipate two future directions for the QSCFA in terms of data generation, manipulation, and consumption.

**Table S.1—Summary of Recommendations**

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**Recommendations**

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Regarding the database objectives:

- Develop the social indicators database system with both short-term and long-term goals in mind.

Regarding the social indicators database content:

- Build a social indicators database system flexible enough to accommodate multiple indicators, store indicators for multiple years, allow indicators to be analyzed as levels or rates, record indicators in aggregate or for disaggregated groups or geographic areas, and add new fields for each indicator over time or add new indicators over time.
- Cover the following broad domains in the social indicators database system: population, economy, family life, education, health and nutrition, environment, civil and political life, safety and security, and statutes.
- Include, for the various individual indicators, a number of specific fields relevant to that indicator.

Regarding the social indicators database indicators:

- Populate the database based on a detailed list of 373 indicators.
- Prioritize the list of indicators to allocate resources effectively.

Regarding refining the list of indicators:

- Reevaluate the set of indicators on at least an annual basis.
- For indicators that are discontinued, determine the treatment of information stored in the database.
- For indicators that are added to the database, determine whether historical information will be stored along with contemporary and future data.
- Review the database fields to determine whether new fields are needed, or whether old ones can be discontinued.
- Communicate to users on a regular basis changes in the database indicators and fields.

Regarding the measurement of database indicators generally:

- Carefully determine the underlying population for any given indicator so that comparisons over time are consistent.
- Record indicators in the database, where relevant and feasible, as both levels and rates.
- Obtain, where possible and relevant, estimates of the standard errors associated with particular indicators.

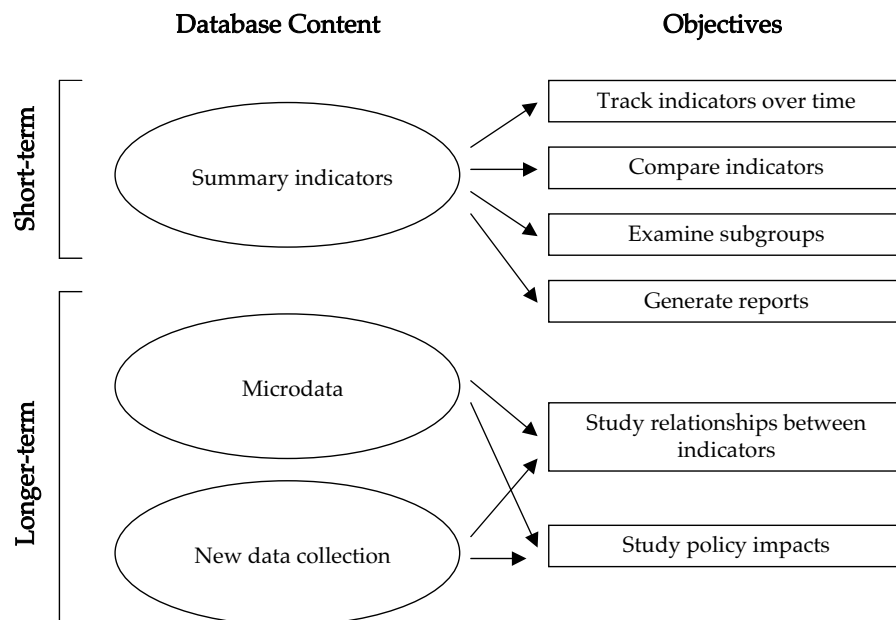
**Table S.1—Summary of Recommendations, Continued**


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<b>Recommendations</b>
<p>Regarding the database architecture:</p> <ul style="list-style-type: none"> <li>→ Establish standards for electronic data exchange.</li> <li>→ Use a dedicated database management system (DBMS) for storage, manipulation, and retrieval of data.</li> <li>→ Adopt a three-tiered client/server database architecture: client, application server or Web server, and database server.</li> <li>→ Implement the user interface of the database as a Web browser application using non-proprietary standards, rather than a Lotus<sup>®</sup> Notes<sup>®</sup>/Domino<sup>®</sup>-specific application.</li> <li>→ Add a provision for ad hoc queries.</li> <li>→ Where appropriate, store the international standard classification numbers or codes used to refer to a particular indicator in a searchable field of the database.</li> </ul> <p>Regarding strategic actions for future implementation of the social indicators database system:</p> <ul style="list-style-type: none"> <li>→ Develop a solid understanding of the various sources of data, their sample coverage, measures available, and strengths and limitations.</li> <li>→ Conduct a complete review of data gaps for the preferred list of indicators.</li> <li>→ Identify other indicators to examine in an in-depth review of measurements, data sources, and data quality.</li> <li>→ Determine whether some indicators must be recomputed to be consistent over time.</li> <li>→ Determine whether new data collection is required.</li> <li>→ Establish a formal mechanism for cooperation with the Planning Council in the implementation of the recommended database architecture.</li> </ul> <p>Regarding longer-term objectives (microdata and data collection):</p> <ul style="list-style-type: none"> <li>→ Pursue development of a database with detailed information on individuals or families and the physical and human capacity to analyze such data.</li> </ul>

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- *The QSCFA would benefit from having access to the underlying data used to generate the summary indicators. These underlying data or “microdata” may include census or survey data, vital statistics data, or administrative data. Access to these detailed data will allow QSCFA staff to analyze the relationships between indicators, including cause-and-effect relationships, as well as to conduct studies of the relationships between specific policies and the outcomes they are designed to influence.*



**Figure S.1—Relationship Between Database Content and Objectives in the Short-Term and Longer-Term**

- *The QSCFA may become a producer of data.* Given the diverse program areas covered by the QSCFA and the associated unique data needs, new data collection may be required in support of policymaking at the Council. In some cases, the information needed by the Council may not be collected currently, or it may not be collected in the way needed to support the desired analyses. For example, there may be a need for special-purpose surveys that allow analyses of the relationships between multiple domains of family life (e.g., demographic, economic, health) or that allow analyses of the dynamics of family life through longitudinal information. Such multipurpose, longitudinal data are often collected through smaller, more intensive surveys, compared with larger-scale censuses or single-purpose cross-sectional surveys (e.g., labor force surveys, or health surveys).
- ***Recommendation: Develop the social indicators database system with both short-term and long-term goals in mind.***

Although the initial focus is on developing a comprehensive, reliable, and accessible database of summary indicators, future developments should move in the direction of developing the capacity for a database that can be used for wider

policy analysis. Ideally, decisions made in support of the short-term objectives will be consistent with the longer-term goals. Choices in the near-term that might hinder the longer-term objectives should be considered carefully to determine whether other options are available to support both sets of objectives.

In the remainder of the summary, we focus on the recommendations that follow from our in-depth analysis of the content, indicators, architecture, and data processing associated with the social indicators database system. These aspects are all relevant for meeting the short-term objectives of the QSCFA and its departments. Our recommendations regarding the short-term objectives also include several that pertain to the necessary strategic next steps for the QSCFA to meet the short-term database goals. We also highlight several recommendations that relate to the longer-term objectives, which may be considered in more depth in a future project.

## Short-Term Focus: Recommendations Regarding the Social Indicators Database System

In considering the requirements for the immediate objective of developing a social indicators database system, we focused on the database content, the indicators and their potential data sources, and the required architecture and data processing. The following section highlights our recommendations in each of these areas. We also feature several strategic recommendations associated with implementing the database.

### *Database Content*

Our analysis of database content leads to three recommendations pertaining to the database features, the domains covered by the data, and the key data elements. These recommendations build on the capabilities demonstrated by the current prototype database.

- ***Recommendation: Build a social indicators database system flexible enough to accommodate multiple indicators, store indicators for multiple years, allow indicators to be analyzed as levels or rates, record indicators in aggregate or for disaggregated groups or geographic areas, and add new fields for each indicator over time or add new indicators over time.***

These features are consistent with the short-term objectives of the database, namely the ability to examine changes in indicators over time, compare alternative measures of the same indicator, examine population subgroups, and

generate reports. The final feature ensures that the database can be modified over time to meet the evolving needs of the Council.

- ***Recommendation: Cover the following broad domains in the social indicators database system: population, economy, family life, education, health and nutrition, environment, civil and political life, safety and security, and statutes.***

Given the breadth and depth of the issues facing the QSCFA departments and QSCFA staff who will use the database system, the subjects covered by the database should be equally comprehensive. Within each of the broad domains, detailed indicators will provide the information required for one or more QSCFA departments.

- ***Recommendation: Include, for the various individual indicators, a number of specific fields relevant to that indicator.***

The specific fields we identified (some of which may involve more than one data element) include:

- Indicator label and definition
- Population unit
- Date of measurement
- Unit of measure
- Source of data
- Methodological notes
- Other fields to record additional key information.

### ***Database Indicators***

The indicators in the database should be shaped by the needs of the primary database consumers, namely the staff in the six main departments of the Council, as well as the associated committees. Given their current mission and potential future goals, the Departments of Family and Women have perhaps the most wide-ranging data needs, covering a broad set of indicators and a variety of population subgroups. The Departments of Childhood, Youth, Elderly, and Special Needs have somewhat more specialized interests, at least in terms of well-defined population subgroups, although the subject areas of interest are equally broad.

Given the wide array of indicators that are of potential interest for the social indicators database system, there are a number of data sources from which these indicators can be drawn. These sources include national accounts, vital statistics, registries, administrative records, population and housing censuses, and other population-based surveys (e.g., Labor Force Survey, Household Expenditure and Income Survey, and Family Health Survey). In some cases, these data sources can provide data on a regular periodicity (e.g., monthly or annually), while other sources may be less frequent or even irregular (e.g., those based on periodic surveys).

Our assessment of the indicators for the database leads to two overarching recommendations; both involve very detailed information, provided in the body of the report.

- ***Recommendation: Populate the database based on a detailed list of 373 indicators.***

We have provided a detailed list of indicators recommended for inclusion in the database. For each indicator, we have provided a definition and unit of measurement, referenced possible data sources, listed relevant population subgroups, and indicated the relevant departments and QSCFA goals. This list reflects indicators currently included in the prototype database, as well as other indicators recommended by the QSCFA departments and research staff as relevant to their objectives. We have also added other indicators that we believe are important for meeting the goals of the QSCFA and its departments.

- ***Recommendation: Prioritize the list of indicators to allocate resources effectively.***

Given how extensive the list of indicators is, assigning a priority ranking will allow the QSCFA to assign resources by the importance of the indicators to the needs of the various departments and the ease with which the data can be obtained. We have provided our recommended rankings for each indicator based on a four-point scale. The QSCFA may wish to modify these rankings based on its own assessment of the relative priorities across indicators and the ease of obtaining the necessary data.

The list of indicators presented in this report should not be viewed as static. Indeed, there is an expectation that new indicators we have not covered will be needed in the future, while indicators currently recommended may no longer be required. For example, in the future, the QSCFA's mission may expand, new sources of data may become available, or new reporting requirements may be implemented. Thus, we also made several recommendations regarding the

process for refining the list of indicators over time. In particular, five recommendations pertain to this issue:

- ***Recommendation: Reevaluate the set of indicators on at least an annual basis.***
- ***Recommendation: For indicators that are discontinued, determine the treatment of information stored in the database.***
- ***Recommendation: For indicators that are added to the database, determine whether historical information will be stored along with contemporary and future data.***
- ***Recommendation: Review the database fields to determine whether new fields are needed, or whether old ones can be discontinued.***
- ***Recommendation: Communicate to users on a regular basis changes in the database indicators and fields.***

Most of these recommendations are self-explanatory. The purpose of the periodic review is to ensure that the indicators and database fields actively maintained in the database will be required to meet the current and future needs of the QSCFA and its departments and to determine whether there are any gaps in the indicators or fields. As indicators or fields are discontinued or added, decisions should be made regarding information already in the database (for the former), and the inclusion of historical data (for the latter). This process of annual review should be undertaken formally as part of a designated committee of QSCFA staff, with representation from the various functional and support departments. Changes should be communicated routinely to the user community, e.g., in writing or through a “bulletin board” accessible to users as part of the database interface.

Although this project was not designed to allow an in-depth analysis of the full set of recommended indicators, we did identify several measurement issues that are relevant for most of the recommended indicators. In this regard, we highlight three general recommendations regarding the measurement of database indicators.

- ***Recommendation: Carefully determine the underlying population for any given indicator so that comparisons over time are consistent.***

Indicators that are population-based are measured for well-defined population groups or subgroups. Thus, it is crucial for the social indicators database system to provide a clear indication of the relevant population for each indicator,

especially to facilitate comparisons of an indicator over time. For example, is the indicator measured for Qataris, non-Qataris, or both? Was the indicator calculated for people of all ages or only for those in a given age range? Was the indicator calculated only for those who met certain criteria (e.g., those who sought medical treatment or those who married in the country)? Often, the relevant population can differ in subtle ways across surveys due to changes in survey methods over time. In some cases, it may be possible to reconstruct indicators in order to define them through time across a consistent population.

- ***Recommendation: Record indicators in the database, where relevant and feasible, as both levels and rates.***

For some indicators, it will be important to determine whether changes in a rate occur because of changes in the numerator versus changes in the denominator or both. By accessing the underlying data that go into the calculation of a rate (i.e., the numerator and denominator), it is possible to gain a better understanding of why the rate is changing over time. When such data are not available, it is important to consider alternative explanations for patterns observed in an indicator over time.

- ***Recommendation: Obtain, where possible and relevant, estimates of the standard errors associated with particular indicators.***

Up and down movements in the point estimates of a given indicator over time are not uncommon, but such movement may reflect, in part, underlying sampling variability when the indicator is based on sample data or other variability introduced in calculating the indicator. Ideally, standard errors would be available for all indicators that are not based on a complete enumeration of the population to construct the associated confidence interval. This allows for a determination as to whether variation over time in an indicator represents meaningful change or just statistical variability. Likewise, the significance of differences in an indicator across groups or data sources can be assessed as well. When such standard errors are not available, changes over time or other differences must be interpreted with caution.

### ***Database Architecture and Processing***

As part of this project, we undertook a detailed examination of the database architecture, identifying the strengths and limitations of the current approach. Based on this assessment, we make some recommendations regarding a future database architecture designed to address the limitations we found and to

enhance the accuracy, functionality, ease of use, and ease of maintenance of the database.

The prototype social indicators database is implemented in Lotus Notes/Domino, version 6.x. This software platform allows a great deal of flexibility in the content of individual records in a database. It also allows for a systematic structure in cataloging the individual records. The prototype, as currently implemented, takes advantage of both these features.

The principal features of the prototype fall into four categories:

- *Database structure:* The structure of the database takes advantage of the flexibility provided by the software platform. Individual records include both data and metadata documenting the data. The data generally consist of time series of given indicators. The metadata included in each record document the source and sometimes the algorithm used to compute a derived indicator. These individual records are stored in a rigidly structured hierarchy. This hierarchy allows for rapid access to indicators relevant to a particular narrow subject area.
- *Data entry:* Currently, data, largely from publications by the Planning Council, are entered manually into the database. However, nothing in the database design precludes automated data entry.
- *Data retrieval:* Data retrieval is facilitated by user-base familiarity with Lotus Notes. It is also facilitated by the hierarchical storage system used for the individual records.
- *Data manipulation:* Lotus Notes/Domino provides tools that a skilled programmer can use to manipulate the data. These tools require a great deal of familiarity with the underlying structure of the data, and thus are not suitable for most end users. End users would typically download the data and manipulate it using Microsoft® Excel® or other software packages.

In our assessment of the current prototype database, we noted several strengths of the implementation, as well as several weaknesses. This assessment informed our investigation of strategies for revising the database architecture to address the limitations of the prototype database.

The strengths include providing (1) a user-friendly platform with which the QSCFA user base is already familiar, the result of its current use of Lotus Notes/Domino in performing other routine tasks such as email; (2) a strict hierarchical organization that is clear and precise, allowing individual

departments to readily access data that are pertinent to their areas of responsibility; (3) considerable flexibility in the storage of data and the associated metadata that documents the data; and (4) the ability to enhance and expand the database capabilities over time through extension packages (e.g., those that provide report-writing or graphics).

The limitations include (1) the use of manual data entry, which is both time-consuming and error-prone; (2) the strict hierarchical organization of the database, which makes it difficult to compare thematically similar indicators across a hierarchy; (3) the flexibility of the individual record format, which precludes ready manipulation of the data without human intervention or great ingenuity on the part of a programmer; and (4) the unstructured nature of the data, which leads to difficulty in performing computations. Note that the second and third examples are both strengths and limitations. These cases illustrate that some elements that are strengths within one context can in turn be weaknesses within another context.

Based on these observations regarding the strengths and weaknesses of the existing prototype, we make the following recommendations:

— ***Recommendation: Establish standards for electronic data exchange.***

The vast majority of the indicators identified on this report are based on data published by the Planning Council, though some indicators will be based on data from other agencies as well. At present, such data are entered manually. This makes maintenance of the database laborious, time-consuming, and error-prone. Thus, we recommend that the QSCFA establish standards for electronic data exchange with the Planning Council and other agencies. We recommend adopting the non-proprietary XML standard for transmitting machine-readable databases, as XML is becoming the common representation language for document interchange over the Web. This would be in addition to any human-readable electronic provision of data by the Planning Council or other agencies (e.g., via Web pages.)

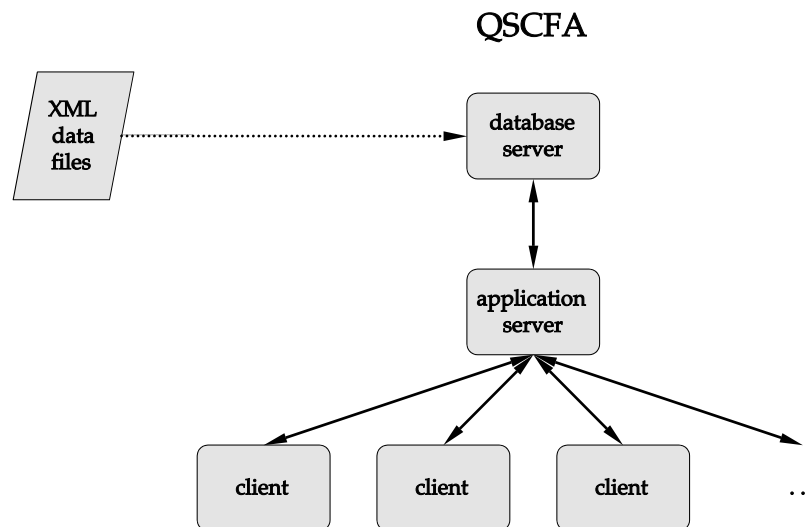
— ***Recommendation: Use a dedicated database management system for storage, manipulation, and retrieval of data.***

Three of the limitations noted above are due largely to the nature of the software platform used to implement the prototype. While the characteristics of the native database of Lotus Notes/Domino make it a useful platform for creating prototype applications to demonstrate capabilities, these characteristics can lead to difficulty in a production environment. Thus, we recommend adopting a

DBMS for storage and manipulation of data using either a relational database management system (RDBMS) or a data warehouse.

→ **Recommendation: Adopt a three-tiered client/server database architecture: client, application server or Web server, and database server.**

We recommend adopting a three-tiered client/server architecture to support the use of either the RDBMS or the data warehouse recommended above, and to provide more flexibility and functionality for the end users. The three tiers consist of (1) a client tier, which provides a graphical user interface (GUI) or Web browser; (2) an application server or Web server tier, which provides application programs or Web pages to act as intermediaries between the client and the database server and can provide access-control and other security measures; and (3) a database server tier, which includes the database management system. This is rapidly becoming the standard best practice for many Web applications. (The current prototype uses a two-tiered architecture, with Lotus Domino serving as both the database and application server, and Lotus Notes as the client.) The three-tiered database architecture is illustrated in Figure S.2.



**Figure S.2—Proposed Database Architecture**

- ***Recommendation: Implement the user interface of the database as a Web browser application using non-proprietary standards, rather than a Lotus Notes/Domino-specific application.***

This recommendation stems from two factors: (1) the desirability of using non-proprietary standards, and (2) the ease of integration with other Web-based resources. Non-proprietary standards are desirable in that they free the database from dependence upon any particular software manufacturer. This will aid in ensuring that the database can be migrated to newer and better environments as the state of the art improves. The ease of integration with other Web-based resources is useful in particular because of the stated intention of the Planning Council to provide a Web-based interface for the QSCFA indicators that they are tasked with producing.

- ***Recommendation: Add a provision for ad hoc queries.***

The recommended list of indicators is our best assessment of the set of indicators that are currently needed by the QSCFA to execute its missions. However, the needs of the QSCFA may change over time, or new data or ways of looking at data may come to light. Thus, we recommend that in addition to providing the listed indicators, the system provide some mechanism for ad hoc queries. This will help to ensure that the database system will continue to be relevant into the future.

Our discussion of the database architecture also assesses the use of international classification and coding schemes. In this regard, we add one further recommendation:

- ***Recommendation: Where appropriate, store the international standard classification numbers or codes used to refer to a particular indicator in a searchable field of the database.***

Currently, no general system for classifying all social indicators exists. However, there are classification systems for certain subsets of data, such as for national income accounts. This recommendation recognizes that there may be some indicators for which it is worthwhile to use existing classification and coding schemes to allow experts familiar with these schemes to access the data using this information.

### ***Strategic Actions for Future Database Implementation***

In terms of the shorter-term focus on developing a social indicators database system, our analysis has highlighted a number of critical issues pertaining to the

database content, the database indicators and their measurement, and the database architecture and processing. We conclude by recommending a series of strategic actions for the QSCFA to pursue in order to meet the short-term objective for the database.

- ***Recommendation: Develop a solid understanding of the various sources of data, their sample coverage, measures available, and strengths and limitations.***

The case studies conducted for a subset of key indicators demonstrate that it is essential to understand the features of the major data sources that are used to construct indicators in the database. This project has made initial progress in this area but it was not designed to be comprehensive in assessing the full range of possible data sources. This recommendation is especially relevant for census and population-based surveys, which may be limited to coverage of specific populations (e.g., by nationality or age group) or the periodicity of the data collection, and where questions may deviate from international standards or vary over time. Similar issues may arise with administrative data or registries and vital statistics as well, where changes in how data were collected or recorded are important to ascertain.

- ***Recommendation: Conduct a complete review of data gaps for the preferred list of indicators.***

With a solid understanding of the various sources of data and a prioritized list of indicators, it is possible to identify more clearly where gaps exist in the availability of the data needed to compute the desired list of indicators. Our assessment identified areas of likely gaps, but the project was not designed to definitively identify all gaps in the data. Among the gaps that stand out are those indicators that are typically available only through survey data and where survey data have not yet covered the relevant topics. For example, to our knowledge, there are no existing surveys that collect information on household debt or the anthropometric measurements (e.g., height and weight) needed to assess obesity and other measures of nutritional status among children and adults. In addition to these obvious gaps, in some cases data may exist to compute an indicator but a closer inspection of the quality of the data might suggest that the source of the data has key limitations. In other cases, the data may be available but for only one point in time and it might be desirable to update the information. Hence, in these cases, a more preferred source of data may be sought.

- ***Recommendation: Identify indicators to examine in an in-depth review of measurements, data sources, and data quality.***

We recommend that QSCFA identify indicators that merit an in-depth review of conceptual measurement, measurement based on current data, and the consistency of measures over time and across data sources. Priority should be given to indicators relevant across multiple departments, indicators that are complex to measure in theory and in practice, and measures that might derive from multiple data sources (e.g., different surveys or the same survey over time). Our list of priorities for indicators that would merit in-depth review would include

- the fertility rate
  - vital statistics on births and deaths and associated indicators derived from these data
  - measures of employment outcomes, such as the distribution of employment by class, occupation, and industry
  - measures of consumption, income, and poverty
  - educational enrollment and attainment indicators
  - health status and measures of health behaviors (e.g., smoking, drug use).
- ***Recommendation: Determine whether some indicators must be recomputed to be consistent over time.***

For certain key indicators, where it is known that changes in data processing or data sources over the years make an indicator less comparable over time, the QSCFA should consider accessing the original data to recompute the indicator using consistent methods over time. This means that the QSCFA database may not match the official published value for a given indicator at any given point in time, but it would create a consistent indicator over time that can be used to assess progress.

- ***Recommendation: Determine whether new data collection is required.***

Based on indicators that remain a priority but for which current data are not available or are not adequate, the QSCFA should assess the need for new data collection. This may take one of several forms:

- capturing administrative data or data from registries in new ways
- revising or adding questions or modules to existing population-based surveys of households or families, or surveys of businesses
- collecting entirely new survey data in special-purpose or general-purpose surveys, either cross-sectional or longitudinal.

Either the first or second type of data collection effort is likely to be less costly than the third, and therefore easier to implement in the short-term. As an example, questions on household debt may be added to future waves of the Household Expenditure and Income Survey (HEIS). Likewise, health questions and anthropometric measurements could be added to future rounds of the Family Health Survey (FHS). We return to the third option below.

- ***Recommendation: Establish a formal mechanism for cooperation with the Planning Council in the implementation of the recommended database architecture.***

The working relationship of the QSCFA and the Planning Council is vital to the successful implementation of the database of indicators. One of the principal recommendations concerning the database architecture is that standards should be implemented for the electronic interchange of data between the Planning Council and the QSCFA. In addition, the QSCFA and the Planning Council should establish a mechanism for quality-assurance, maintenance, and updating of the source data for the indicators, as well as the appropriate methods to ensure data confidentiality and security.

## Long-Term Focus: Recommendations Regarding Microdata and Data Collection

As noted above, we identified longer-term objectives for the QSCFA database, beyond a social indicators database system: namely, having the data and capacity to analyze relationships between variables and policy impacts. While the main focus in the near-term is on the social indicators database system, we put forth one recommendation regarding the longer-term objective as well.

- ***Recommendation: Pursue development of a database with detailed information on individuals or families and the physical and human capacity to analyze such data.***

The initial step would be to explore options for the QSCFA to begin to store and analyze the underlying microdata used to construct the social indicators. This

first step would be relatively straightforward, provided that computing capacity and staff with expertise in data analysis are available. The second step would be to begin exploration of a new multipurpose survey, ideally one following the same households over time, to collect the specialized data needed to inform QSCFA decisionmaking. A multipurpose survey would allow analysis of multiple dimensions of family life in the same data source—economic data analyzed together with data on demographic behavior, health outcomes, human-capital investments, and other aspects of family decisionmaking. A survey that follows the same households and individuals over time would permit analyses of the dynamics of decisionmaking over time: marriage and divorce, labor force entry and exit, schooling investments, changes in health status, responses to economic shocks (e.g., death of a household member), and so on. Such data do not currently exist in Qatar and would be a tremendous asset for understanding a wide array of issues addressed by the QSCFA and its departments. In developing such a survey, it will be critical to develop protocols to ensure the privacy of individuals and families from which information is collected, including greater security provisions than what is required for a database of summary statistics. Such a survey would be a large undertaking, but ultimately a worthwhile investment in terms of improved knowledge of the well-being of families, women, children, youth, the elderly, and those with special needs in Qatar’s rapidly changing economic, cultural, and social environment.