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Contraceptive Security Index: Technical Manual

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Contraceptive Security Index: Technical Manual

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Acronyms

AIDS	acquired immune deficiency syndrome
CMS	Commercial Market Strategies
CPR	contraceptive prevalence rate
CS	contraceptive security
DHS	Demographic and Health Survey
FP	family planning
FPE	Family Planning Effort
FPLM	Family Planning Logistics Management
GDP	gross domestic product
GNI	gross national income
HIV	human immunodeficiency virus
JSI	John Snow, Inc.
LMIS	logistics management information system
PATH	Program for Appropriate Technology in Health
PPP	purchasing power parity
PRB	Population Reference Bureau
RH	reproductive health
RHS	Reproductive Health Survey
SLI	standard of living index
SPARHCS	Strategic Pathway to Reproductive Health Commodity Security
STI	sexually transmitted infection
UNAIDS	United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
USAID	U.S. Agency for International Development
WDI	World Development Indicators (World Bank)

Introduction

A primary goal of reproductive health and family planning programs is to ensure that people can choose, obtain, and use a wide range of high-quality, affordable contraceptive methods including condoms for STI/HIV prevention. Referred to as *contraceptive security*, achieving this goal requires sustainable strategies that will ensure and maintain access to and availability of supplies.

As demand for family planning continues to rise in developing countries and in countries in transition, compounded by significant population growth, it will be more challenging to achieve contraceptive security (CS). Financing for reproductive health (RH) and family planning (FP) programs is not keeping pace with demand, and donor and national resources are more constrained than ever. Despite investments in service delivery and logistics systems, these systems remain inadequate in many countries. At the same time, increased demand—coupled with the impact of the HIV and AIDS pandemic, health sector reforms, limited national and international funding, and the brain drain—leaves countries unable to meet all their populations' RH needs. It remains critical that stakeholders and program managers focus attention on long-term CS.

Programs cannot meet their clients' reproductive health and family planning needs without the reliable availability of quality contraceptive supplies and services. Attaining the poverty reduction and health goals adopted by many countries—primarily HIV reduction, and maternal and child health—will be slowed without improvements in contraceptive security. Ensuring that contraceptive supplies and services are available to clients requires a multi-sectoral approach. The public and private sectors must cooperate to ensure—

- an enabling policy environment,
- appropriate forecasting and procurement of commodities,
- efficient supply chains,
- well-trained providers,
- effective service delivery systems,
- a supportive social environment,
- and adequate financing.

To plan effective interventions to reach this goal, policymakers, program managers, and international donor agencies need to know if and how their programs are progressing toward contraceptive security.

This manual and the accompanying wall charts present a tool that was developed to measure a country's level of contraceptive security and how to monitor CS over time. To measure the level of contraceptive security in countries, the tool uses a set of indicators that cover the primary CS components. The indicators can be used separately to monitor progress in each component. They can also be aggregated to establish a composite index, which can be used to compare countries at a point in time or to monitor progress, over time, within a country.

This technical manual describes, in detail, the methodology for calculating the *CS Index*. Readers can use it to make future measures of the index, to update scores for countries in previous series, and to add new countries.

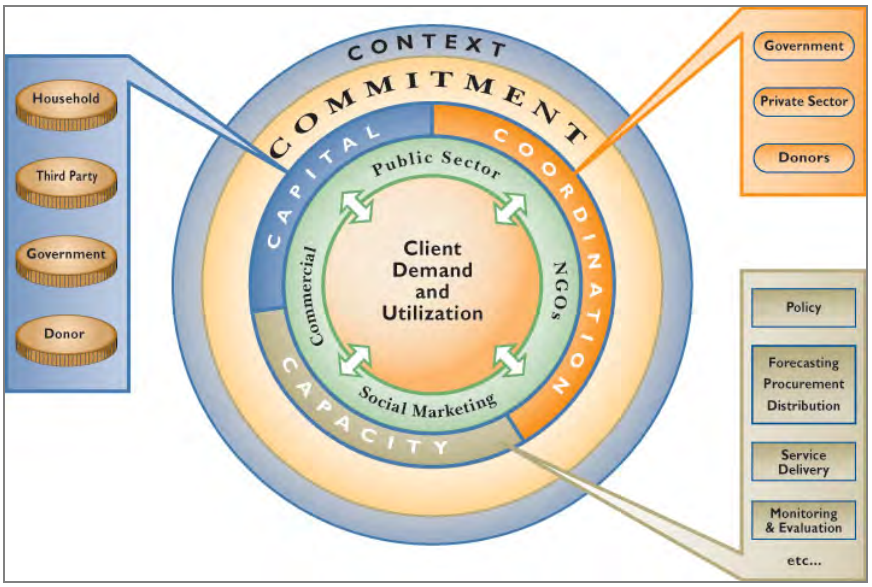
Background

The *CS Index* builds on the past work of other public health organizations. Staff at the Program for Appropriate Technology in Health (PATH) authored *Contraceptive Security: Toward a Framework for a Global Assessment* (Finkle, Hutchings, and Vail 2001), which was presented at a 2001 international conference for reproductive health commodity security.[1] This paper laid the groundwork for the development of a methodology to measure and monitor contraceptive security.

In a separate effort, more than twenty organizations collaborated in the development of the *Strategic Pathway to Reproductive Health Commodity Security* (SPARHCS), a tool that is used to assess and plan for reproductive health commodity security. The framework at the core of SPARHCS was used as a guide in developing the *CS Index*. It defines the program and the program environment components that are needed to achieve RH commodity security, whether for contraceptives or other RH commodities (see figure 1).

Both efforts have drawn much needed attention to the issues around contraceptive security, and generated interest in refining a methodology to measure CS. The *CS Index* considers additional indicators, organizes them around a conceptual framework that is vetted by a wide range of family planning experts; and, for cross-country comparisons and in-country analysis, enables additional countries to be scored in the index.

Figure 1. Reproductive Health Commodity Security Framework



[1] Held in Istanbul in May 2001. "Meeting the Reproductive Health Challenge: Securing Contraceptives and Condoms for HIV/AIDS Prevention" was organized by the Interim Working Group on Reproductive Health Supplies (IWG). This was a collaborative effort by John Snow, Inc., Population Action International, the Program for Appropriate Technology in Health, and the Wallace Global Fund to address the looming crisis represented by the shortfall in contraceptives around the world.

Methodology

The work noted above was a starting point for a working group that met to conceptualize the original *CS Index* in 2003. The group consisted of CS experts from USAID, John Snow, Inc./DELIVER Project, Futures Group International/POLICY Project, and Commercial Market Strategies (CMS) Project. The *CS Index* was designed to minimize data collection costs (using only secondary data), and to maximize data reliability, validity, and replicability. Seventeen indicators were chosen to meet these criteria. They address a mix of inputs and outputs, and programmatic and macro-level issues. Together, they paint a picture of CS and promote a cross-sectoral approach to addressing CS. Although some indicators are highly correlated, each represents an important aspect of CS. During development, the working group experimented with different indicators and weighting schemes, and recognized that they all had limitations. In the end, 17 indicators are arrayed across the five CS components described below; the components are aggregated to create the index.

Using the same methodology in each version of the index, and with input from many of the same partners, the *CS Index* has been updated approximately every three years. The same indicators and data sources have been maintained using the latest version of all reference documents. Please refer to notes by indicator below.

I. Definitions

Component I: Supply Chain

Each of the five indicators of logistics management represents a key function in the supply chain for contraceptive supplies. An effective supply chain ensures the continuous supply of sufficient quantities of high-quality contraceptives needed to achieve contraceptive security. More effective management of supplies is associated with better prospects for contraceptive security.

The first four indicators were originally obtained from John Snow, Inc.'s (JSI) Family Planning Logistics Management (FPLM) project's Composite Indicators for Contraceptive Logistics Management database (JSI/FPLM 1999 and more recent updates[2]). Staff from the FPLM Project and its successors, the DELIVER Project and the USAID | DELIVER PROJECT, and Ministry of Health counterparts score these indicators for public sector logistics systems that manage contraceptives through a participatory focus group discussion held in each country and through key informant interviews.

Storage and Distribution

Assesses storage capacity and conditions, standards for maintaining product quality, inventory control, stockouts, tracking system losses, and distribution and transportation systems.

[2] In 2000, the DELIVER project, which followed the FPLM project, replaced the Composite Indicators with an updated Logistics System Assessment Tool (LSAT). Although the Composite Indicators have evolved since their original design and use under the FPLM Project, the scoring methodology and indicators remain very similar. Details are available at deliver.jsi.com.

Logistics Management Information Systems (LMIS)

Assesses reporting systems, the validation of data, and information management and its use in decision making.

Forecasting

Assesses how forecasts of consumption are prepared, updated, validated, and incorporated into cost analysis and budgetary planning.

Procurement

Assesses how forecasts are used to determine short-term procurement plans and the degree to which correct amounts of contraceptives are obtained in an appropriate time frame.

Contraceptive Policy

The fifth supply-related indicator is drawn from the results of the Futures Group International's Family Planning Effort (FPE) survey (Ross and Stover May 2000 and more recent updates). The FPE is conducted periodically by administering a questionnaire to expert respondents in countries around the world.

In some circumstances, locally manufactured contraceptives can provide an affordable and sustainable option for clients. In many countries, it will be more effective to have policies and regulations that facilitate open markets and the importation of competitively priced, high-quality products. This indicator measures the extent to which import laws and legal regulations facilitate the importation of contraceptive supplies, or the extent to which contraceptives are manufactured within the country.

Component II: Finance

Sustainable and adequate financing for the procurement of contraceptives, service delivery, and other program components from international donors and lenders, national or local governments, households, and third parties is critical for ensuring contraceptive security. Without a commitment for financing, program quality and access will suffer and CS will not be sustainable. Data are not widely or readily available to obtain an adequate country-level picture of contraceptive financing by donors/lenders, third parties (e.g., insurers, employers), or the private sector. Three indicators are used to capture the prospects for government and household financing of family planning services and contraceptives in a country. The World Bank's *World Development Indicators* (WDI) are the source for these indicators.

Government Health Expenditures as a Percentage of Total Government Spending

The commitment of a national government to public health, specifically to reproductive health and family planning, is critical for CS. The poorest segments of a population depend on free or subsidized health services, often provided by the government for essential preventive and curative health services. This indicator measures political commitment to public health spending as a proxy for government commitment to family planning programs. Greater commitment to health spending means more potential resources for family planning programs as part of the overall government health programs. This indicator is calculated from two indicators in the WDI: public expenditures on health as a percentage of the gross domestic product (GDP) divided by total government expenditures as a percentage of GDP:

(Gov Exp on Health/GDP) ÷ (Total Gov Exp/GDP) = (Gov Exp on Health/Total Gov Exp)

Per Capita Gross National Income (GNI)

A greater ability to pay for contraceptives at the household level is associated with better prospects for contraceptive security. To allow for a better comparison across countries, this indicator represents the average consumer's potential ability to pay for family planning services and contraceptives expressed in purchasing power parity (PPP), which corrects for differences in market prices of goods in each country.

Poverty Level

While per capita income measures the average consumer's ability to pay, there are always inequalities in the distribution of income. High poverty rates can threaten CS if provisions are not made to ensure access to services and commodities for the poor. Higher poverty rates can indicate a greater reliance of the population on the public sector, adding stress to already overburdened systems. Because higher poverty rates are associated with lower household incomes and poorer access to health care, higher poverty rates are also associated with poorer prospects for contraceptive security. This indicator is expressed as the percentage of the national population living below the nationally defined poverty line.

Component III: Health and Social Environment

The health and social environment component, composed of three indicators, is included because it is recognized that other factors in the broader health and social environment can affect prospects for contraceptive security, at both the country and individual levels, as described below.

Governance

A healthier political environment improves prospects for contraceptive security. An accountable, stable, effective, and transparent government is more likely to be committed to the health and well-being of its population, and more likely to use its resources appropriately for the public good. International donors are also more likely to provide financial and material support to this kind of government. The private sector is more likely to invest in creating new or expanding existing markets for contraceptives. This indicator is a composite measure of governance, and is composed of the sum of six dimensions, each worth 30 points: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. It is derived from the World Bank's *Governance Matters* index (Kaufman, Kraay, and Zoido-Lobaton, January 2002 and more recent updates).

Women's Education

Women's educational attainment is one of the best predictors of contraceptive use. Women who are educated beyond primary school are more likely to use a contraceptive method. In addition, in countries where women have good status, educated women are more likely to advocate for family planning programs. This indicator is expressed as the percentage of females enrolled in secondary school defined as the ratio of the number of students enrolled in secondary school to the population in the applicable age group (gross enrollment ratio). Secondary school enrollment rates can be obtained from the Population Reference Bureau's *Women of the World* publication (Population Reference Bureau 2002 and more recent updates) and other sources.[3]

[3] For example, Roudi-Fahimi and Moghadam October 2003 is the source of data for Jordan in the 2003 index. For the 2009 *CS Index*, these data were obtained from the UNESCO Institute for Statistics which is the original source of PRB's online database.

Adult HIV Prevalence

It is increasingly recognized that a higher burden of HIV in a population can erode prospects for contraceptive security. HIV and AIDS contribute to higher levels of poverty and the pandemic has put new, competing demands on health financing. This indicator is expressed as the percentage of adults, age 15–49, who are infected with the HIV virus. HIV prevalence among adults of reproductive age (15–49) is used as the indicator for the *CS Index*, because this population is most likely to use contraceptives and obtain services from FP programs, making it the most relevant population for contraceptive security. It is also the most widely available data. Adult HIV prevalence rates can be obtained from the UNAIDS *Report on the Global HIV/AIDS Epidemic* (UNAIDS July 2002 and more recent updates).

Component IV: Access

The three access indicators measure aspects of availability and access to modern methods of contraception—the degree to which clients can *choose and obtain* their method of choice. Family planning and reproductive health programs should strive to offer a variety of methods to meet the needs of *all* clients.

Access to Modern Family Planning Methods

Ready and easy access by clients to a wide range of contraceptive methods is associated with better prospects for contraceptive security. When family planning services are widely available and used, it is very difficult to reverse the progress in access and availability of these services and supplies. This indicator measures the percentage of a country's population that has ready and easy access to male and female sterilization, pills, injectables, condoms, spermicides, and IUDs. For the *CS Index*, the mean access score for these contraceptive methods is used. It is also taken from the Family Planning Effort survey (Ross and Stover May 2000 and more recent updates).

Public Sector Targeting

Public sector family planning programs that offer heavily subsidized (and sometimes free) services and commodities are designed to meet the needs of the poor and near-poor segments of a population. This public sector funding is limited in virtually every country. The degree to which the poorest people benefit from these subsidized services, while wealthier clients who can afford to pay for services and commodities have and use other options, reflects upon the long-term CS in a country.

This indicator measures the proportion of a country's contraceptives distributed through public sector channels that go to poor and near-poor family planning clients. "Poor and near-poor" is defined as clients who are in the lowest 40 percent of the population as defined by an asset-based standard of living index (SLI) developed by ORC Macro and the World Bank.[4] A ratio of the percentage of users of public sector contraceptives from the bottom two quintiles to the top two quintiles is calculated. Data from the most recent Demographic and Health Surveys (DHS) and Reproductive Health Surveys (RHS) are used both to compute the SLI and the distribution of public sector FP users across SLI categories.[5]

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[4]For a detailed description of the methodology for constructing the wealth index, see Filmer and Pritchett 1999.

[5] Both the DHS, managed by the MEASURE/DHS+ project at ORC Macro (www.measuredhs.com), and the RHS, managed by the Centers for Disease Control and Prevention, Department of Reproductive Health (www.cdc.gov/reproductivehealth/Surveys/SurveyList.htm), are carried out with USAID funding.

Spread of Access to Modern Family Planning Methods

Access to a wide range of family planning methods represents a choice for clients. Access to a range of methods can also mean that if one method becomes unavailable, other methods are available to clients in the interim. This concept of choice is the key to contraceptive security, regardless of what methods clients choose (reflected in *Component V: Utilization*). This indicator is related to the access indicator above and uses the same database of access scores for individual methods. It measures whether clients have *ready and easy access* to a broad range of at least three contraceptive methods by taking the access score for the highest-scored method, minus the score for the third-highest, divided by the sum of access scores for all methods:

(score for highest scored method – score for third highest) ÷ (sum of all access scores)

This data is also taken from the Family Planning Effort survey (Ross and Stover May 2000 and more recent updates).

Component V: Utilization

This component, composed of three indicators, measures clients' behaviors in terms of contraceptive use within the country program context.

Method Mix

While the access indicators (see *Component IV: Access*) measure the extent to which consumers have ready and easy access to methods, this indicator measures the degree to which consumers *use* a range of methods. The broader the range of methods used, the better the prospects for contraceptive security, because it demonstrates that women have a choice and they are choosing from a range of methods. This indicator was measured as the difference in prevalence rates between the most prevalent modern method in a country and the third-most prevalent method, divided by the total modern method prevalence.

(prevalence for most prevalent method – prevalence for third highest) ÷ (total modern method prevalence)

A higher value indicates a higher concentration of use on a limited number of methods, which is interpreted as not being conducive to contraceptive security. This indicator is derived from the most recently available DHS or RHS data set for each country.

Unmet Need for Family Planning

Unmet need for family planning is indicative of barriers to accessing and using family planning. The higher the percentage of women with unmet need for contraception, the poorer the prospects for contraceptive security because unmet need represents clients who express a need to use family planning but cannot or do not. This indicator measures the percentage of currently married women of reproductive age who express a desire to space or limit their next pregnancy, or who would have preferred to avoid or delay their current pregnancy, but are not using a contraceptive method. This indicator is derived from the most recently available DHS or RHS data set for each country.

Contraceptive Prevalence Rate (CPR)

This indicator is the most obvious outcome of contraceptive security—women actually using contraception. Higher contraceptive use is indicative of better access and availability of contraceptives for the population. Increased contraceptive use will also encourage the improved

availability in both the public and private sectors through political pressures and market forces. This indicator measures the percentage of married women of reproductive age currently using a modern method of family planning. This data is available from the Population Reference Bureau's *World Population Data Sheet* (Population Reference Bureau 2003 and more recent updates).

II. Technical Issues

Missing Values

As noted earlier, data for all indicators were collected from the most recently available sources; no primary data collection was conducted. As is inevitable with secondary data, information was occasionally missing for some indicator and country combinations.

A number of indicators came from the same data source, for example, the first four supply chain indicators, the indicators from the FPE survey, the indicators from the WDI, and the indicators extracted from a DHS or RHS. Therefore, if that survey is not available for a particular country or year, all the indicators from that source will be missing. To limit the number of indicator values that must be filled in each subsequent index, a value from the previous index will be carried forward a maximum of one time to the subsequent *CS Index*. If the indicator value is still missing after the data has been used for a maximum of two versions of the index, it will not be brought forward again. It will then be considered a missing value and will be filled using the linear regression methodology described below.

A country must have actual values (i.e., not missing) for at least two-thirds of the 17 indicators to be included in the *CS Index*. A country with fewer actual indicator values than that was cut from the list of countries, which is why the list can change from index to index.

Unless indicated otherwise, missing values were filled using a multivariate linear regression. Each indicator was imputed for missing values by using the rest of the indicators as the predictors in the regression model:

$$Y = m1X1 + m2X2 + \ldots.. + m16X16 + b$$

Where Y is the indicator with a missing value and X1 to X16 are the other 16 indicators.

Scales and Conversions

Most of the indicators included in the index use a scale with a minimum score and a maximum score. However, in two cases, the scales are open-ended and a maximum score needed to be set—per capita GNI and public sector targeting. In a few other cases, the maximum score is not realistically attainable—government health expenditure, adult HIV prevalence, unmet need; therefore, the scales are truncated to provide a more realistic maximum score. The maximum scores for all indicators are described below by indicator.

Next, to calculate the composite index, the raw indicator scales, which vary across the 17 indicators in the index, are standardized to a 10-point scale so that the ranges are comparable. In general, a higher value (on the 10-point scale) is associated with better contraceptive security. However, this is not the case for poverty level, adult HIV prevalence, spread of access to FP methods, method mix, and unmet need, where higher scores are associated with poorer contraceptive security. Therefore, the scores for these indicators are inverted so that a higher score is associated with better contraceptive security. Scales and conversion methods are described by indicator below.

Supply Chain Indicators

- **Storage and distribution:** Raw values for this indicator, with a possible range from 0 to 30, are multiplied by 10/30 to convert them to a 10-point scale.
- **LMIS:** Raw values for this indicator, with a possible range from 0 to 12, are multiplied by 10/12 to convert them to a 10-point scale.
- **Forecasting:** Raw values for this indicator, with a possible range from 0 to 8, are multiplied by 10/8 to convert them to a 10-point scale.
- **Procurement:** Raw values for this indicator, with a possible range from 0 to 8, are multiplied by 10/8 to convert them to a 10-point scale.
- **Contraceptive policy:** Raw values for this indicator, with a possible range from 0 to 4, are multiplied by 10/4 to convert them to a 10-point scale.

Finance Indicators

- **Government health expenditures as a percentage of total government spending:** Raw values for this indicator have a possible range from 0 to 100 percent. However, it is unreasonable and unlikely that the value for this indicator would ever reach this theoretical maximum, as there are many demands on national budgets. The highest value observed in the original 2003 series was 28 percent. Therefore, a maximum of 30 percent is set and the raw values are multiplied by 10/30 to convert them to a 10-point scale. For future measurements of the index, the maximum can be reset according to observed values.
- **Per capita GNI:** Theoretically, there is no upper limit to the possible range of values for this indicator. The highest value observed among the countries in the 2003 series was U.S.$10,900. However, it is assumed that as additional countries are added to this series, raw values above this observed maximum might occur. A maximum of U.S.$20,000 is set; and raw values for this indicator are, therefore, multiplied by 10/20,000 to convert them to a 10-point scale. The maximum can be reset according to future observed increases in per capita GNI.
- **Poverty level:** Raw values for this indicator, which have a possible range from 0 to 100 percent, are multiplied by 10/100 to convert them to a 10-point scale. Because a higher poverty rate is associated with lower contraceptive security, the raw values are then subtracted from 10 to obtain a non-poverty rate to calculate the composite index scores. (A higher non-poverty rate is associated with higher contraceptive security.)

Health and Social Environment Indicators

- **Governance:** The possible range of raw values for this indicator is –15 to +15. This is first converted to a 0 to 30-point scale by adding 15 points to each raw value. Each converted value is then multiplied by 10/30 to convert it to a 10-point scale.
- **Women's education:** Raw values for this indicator, with a possible range from 0 to 100 percent, are multiplied by 10/100 to convert them to a 10-point scale.
- **Adult HIV prevalence:** Although the possible range of values for this indicator is 0 to 100 percent, it is unlikely that HIV infection would ever come close to 100 percent in a country. The highest observed value in the 2003 series was 33.7 percent. A more plausible maximum value can be set at 50 percent to accommodate future increases in prevalence. This indicator is then

multiplied by 10/50 to convert it to a 10-point scale. In addition, because a higher adult HIV prevalence rate is associated with lower contraceptive security, the values are inverted by subtracting them from 10 so that a higher value (indicating a higher proportion of HIV-negative adults) is associated with higher contraceptive security.

Access Indicators

- **Access to modern family planning methods:** Raw values for this indicator, with a possible range from 0 to 4, are multiplied by 10/4 to convert them to a 10-point scale.
- **Public sector targeting:** In a public sector family planning program perfectly targeted to the poor and the near poor (the lowest two SLI quintiles), 100 percent of public sector supplies could be distributed to poor and near poor consumers. The possible range of values for this ratio is 0 to infinity, although most countries in the original 2003 index scored around 1 or less (meaning that the public sector supplies are distributed either equally to the poor and the rich—a score of 1—or are more likely going to wealthier clients—a score of less than 1). The highest value observed in 2003 was 2.3, so a more realistic maximum value was set at 10. Because raw values are already all within a 10-point scale, they did not need to be converted.
- **Spread of access to modern family planning methods:** The range of possible scores for this ratio is 0 to 1. Raw values are multiplied by 10 to convert them to a 10-point scale. This indicator also has to be inverted, as a higher score indicates a greater concentration of users to one method—a situation not conducive to contraceptive security. Values are subtracted from 10, so that a higher value (indicating a broader spread of access to different methods) is associated with higher contraceptive security.

Utilization Indicators

- **Method mix:** The possible range of raw values for this indicator is 0 to 1.0, with a higher value being associated with poorer contraceptive security. Raw values are multiplied by 10 to convert them to a 10-point scale. These values are then subtracted from 10 so that a higher value is associated with higher contraceptive security.
- **Unmet need:** Although the possible range of values for this indicator is 0 to 100 percent, it is highly improbable that unmet need could ever reach 100 percent. The highest observed value in the 2003 series was 39.8 percent. A more probable maximum value of 50 percent for unmet need in any country is selected; this indicator is multiplied by 10/50 to convert it to a 10-point scale. In addition, because a higher level of unmet need is associated with lower contraceptive security, the values are inverted by subtracting them from 10, so a higher value (indicating a lower level of unmet need) is associated with higher contraceptive security.
- **Contraceptive prevalence rate (CPR):** Raw values for this indicator, with a possible range from 0 to 100 percent, are multiplied by 10/100 to convert them to a 10-point scale.

Weighting

All five components included in the *CS Index* are equally important to achieving CS. Therefore, each component is given 20 percent of the total index score of 100. Table 1 shows the weighting scheme applied to the individual indicators and the five index component totals.

Index Calculation

Each of the five component scores are on a scale of 0 to 20. Each score is the sum of the products of the values of the component's indicators (each now on a 0 to 10 scale) times their respective weights. *CS Index* composite scores are the sum of the component scores, making a scale of 0 to 100.

Table 1. Weighting Scheme for *CS Index* Components and Indicators

Component/Indicator	Weight (%)
Supply Chain	**Component Total: 20%**
Storage/distribution	4.0
LMIS	4.0
Forecasting	4.0
Procurement	4.0
Contraceptive policy	4.0
Finance	**Component Total: 20%**
Government health expenditures	6.7
Per capita GNP	6.7
Poverty level	6.7
Health and Social Environment	**Component Total: 20%**
Governance	6.7
Women's education	6.7
Adult HIV prevalence	6.7
Access	**Component Total: 20%**
Access to modern FP methods	6.7
Public sector targeting	6.7
Spread of access to modern FP methods	6.7
Utilization	**Component Total: 20%**
Method mix	6.7
Unmet need	6.7
CPR	6.7

Uses

The *CS Index* is a powerful tool for raising awareness about CS and the interrelationships between program components, different sectors, and program outcomes. The index can be useful for comparing inputs and program outputs. At the international and national level, the index can be used to help set priorities and to plan and advocate for supportive policies and other interventions that promote progress toward CS. At the national level, it can identify broad areas of relative strengths and weaknesses to help stakeholders target their resources more effectively and appropriately. However, to move countries toward contraceptive security, an in-depth assessment is required at the country level to identify more specific issues that need to be addressed in a national CS strategic plan.

The *CS Index* can be used to set priorities and to advocate for national and international support for promoting progress toward contraceptive security. It is also a useful guide for advocating among global donors and lenders to determine the countries most in need of assistance and to determine what kind of assistance they need. It can help improve resource allocation by providing them with a way to track where countries are on a continuum of contraceptive security. With repeated measures over time, the results can be used to monitor progress toward the goal of contraceptive security. By drawing attention to the importance of contraceptive security, this tool can help donors and governments focus on meeting the growing contraceptive needs into the future.

Finally, the *CS Index* should be updated periodically, as new data become available (ideally, every three years).

Methodological Considerations

The index represents a country's CS situation at a point in time, although the actual data was collected over a period of years. It is unavoidable that indicators will be updated for different countries at different intervals. Ideally, the index will be updated periodically (e.g., every three years) in order to use the results to monitor progress toward the goal of contraceptive security over time.

Comparisons can be drawn, over time, between the 2003 and 2006 findings at the aggregate level (i.e., by region, component, and total score). However, because of a change in the data collection methodology for some of the supply chain indicators, comparisons across time from 2003 to 2006 at the country level and at the individual supply chain indicator level are not advisable. Nonetheless, the index's applicability for the other purposes mentioned above remains valid. From 2006 to 2009, no further changes were made in the data collection methodology; therefore, comparisons of data from 2006 to 2009 at the country level can be considered.

References

DELIVER and Task Order 1 of the USAID | Health Policy Initiative. 2006. *Contraceptive Security Index 2006: A Tool for Priority Setting and Planning.* Arlington, Va.: DELIVER for the U.S. Agency for International Development.

Demographic and Health Surveys (DHS), various countries and various years. Calverton, Md.: MEASURE DHS. www.measuredhs.com/

Filmer, D., and L. Pritchett. 1999. "The Effect of Household Wealth on Educational Attainment: Evidence from 35 Countries." Population and Development Review 25(1):85–120.

Finkle, Clea T., Jane Hutchings, and Janet Vail. 2001. *Contraceptive Security: Toward a Framework for a Global Assessment*. Seattle: Program for Appropriate Technology in Health (PATH).

Hare, L., Hart, C., Scribner, S., Shepherd, C., Pandit, T. (ed.), and Bornbusch, A. (ed.). 2004. *SPARHCS: Strategic Pathway to Reproductive Health Commodity Security. A Tool for Assessment, Planning, and Implementation.* Baltimore, Md.: Information and Knowledge for Optimal Health (INFO) Project/Center for Communications Programs, Johns Hopkins Bloomberg School of Public Health.

International Bank for Reconstruction and Development (IBRD)/World Bank. 2003. *World Development Indicators 2003*. http://devdata.worldbank.org/wdi2003/

International Bank for Reconstruction and Development (IBRD)/World Bank. 2006. *World Development Indicators 2006*. http://devdata.worldbank.org/wdi2006/contents/index2.htm

International Bank for Reconstruction and Development (IBRD)/World Bank. 2009. *World Development Indicators 2009*. http://publications.worldbank.org/WDI/

John Snow, Inc./DELIVER. 2004. *Logistics System Assessment Tool (LSAT).* Arlington, Va.: John Snow, Inc./DELIVER, for the U.S. Agency for International Development.

John Snow, Inc./DELIVER and Futures Group/POLICY Project. 2003. *Contraceptive Security Index 2003: A Tool for Priority Setting and Planning.* Arlington, Va.: DELIVER for the U.S. Agency for International Development.

John Snow, Inc./Family Planning Logistics Management (JSI/FPLM) and the EVALUATION Project. April 1999. *Composite Indicators for Contraceptive Logistics Management.* Arlington, Va.: JSI/FPLM, for the U.S. Agency for International Development.

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. May 2005. *Governance Matters IV: Governance Indicators for 1996–2004*. http://www.worldbank.org/wbi/governance/govdata/

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. June 2009. *Governance Matters VIII: Governance Indicators for 1996–2008*. http://info.worldbank.org/governance/wgi/index.asp/

Kaufman, Daniel, Aart Kraay, and Pablo Zoido-Lobaton. January 2002. Governance Matters, II: Updated Indicators for 2001-02. (http://www.worldbank.org/wbi/governance/govdata2001).

Population Reference Bureau. February 2006. *The World's Youth 2006 Data Sheet.* Washington, DC: Population Reference Bureau. www.prb.org.

Population Reference Bureau. 2002. *2002 Women of the World.* Washington, D.C.: Population Reference Bureau. www.prb.org.

Population Reference Bureau. March 2005. *2005 Women of Our World*. Washington, D.C.: Population Reference Bureau. www.prb.org.

Population Reference Bureau. 2003. *2003 World Population Data Sheet*. Washington, D.C.: Population Reference Bureau. www.prb.org.

Population Reference Bureau. August 2006. *2006 World Population Data Sheet*. Washington, DC: Population Reference Bureau. www.prb.org.

Population Reference Bureau. August 2009. *2009 World Population Data Sheet*. Washington, DC: Population Reference Bureau. www.prb.org

Reproductive Health Surveys (RHS), various countries and various years. U.S. Centers for Disease Control and Prevention. www.cdc.gov/reproductivehealth/Surveys/SurveyList.htm

Ross, John, and Ellen Smith. 2009. *Effort Ratings for National Family Planning Programs*. Forthcoming. Washington, DC: Futures Group International prepared for International Conference on Family Planning, Kampala, Uganda, November 2009.

Ross, John, and John Stover. May 2000. Effort Indices for National Family Planning Programs, 1999 Cycle. Washington, D.C.: Futures Group International for MEASURE/Evaluation.

Ross, John, John Stover and Demi Adelaja. March 2006. *Family Planning Programs in 2004: Efforts, Justifications, Influences, and Special Populations of Interest*. Working Paper, MEASURE/Evaluation Project of the Carolina Population Center.

Roudi-Fahimi, Farzaneh, and Valentine M. Moghadam. October 2003. "Empowering Women, Developing Society: Female Education in the Middle East and North Africa." Population Reference Bureau Policy Brief. Washington, D.C.: Population Reference Bureau.

UNAIDS. July 2002. *Report on the Global HIV/AIDS Epidemic 2002*. Geneva: UNAIDS.

UNAIDS. 2005. *Report on the Global HIV/AIDS Epidemic 2005*. Geneva: UNAIDS.

UNAIDS. 2008. *Report on the Global HIV/AIDS Epidemic 2008*. Geneva: UNAIDS.

UNESCO Institute for Statistics. Women's education data downloaded April 2009 from: http://www.uis.unesco.org/ev_en.php?URL_ID=3753&URL_DO=DO_TOPIC&URL_SECTION=201

USAID | DELIVER PROJECT, Task Order 1. 2009. *Contraceptive Security Index 2009: A Tool for Priority Setting and Planning. Arlington*, Va.: USAID | DELIVER PROJECT, Task Order 1.

Additional contraceptive security resources are available at the following web sites:

Department for International Development (DFID): www.dfid.gov.uk

DKT International: www.dktinternational.org

Health Systems 20/20: www.healthsystems2020.org

Implementing Best Practices (IBP) Knowledge Gateway: www.ibpinitiative.org/

International Planned Parenthood Federation: www.ippf.org

Knowledge for Health Project (K4Health): www.k4health.org/node/2

Marie Stopes International: www.mariestopes.org

Maximizing Access and Quality (MAQ) Initiative: www.maqweb.org

PATH: www.path.org

POLICY Project: www.policyproject.com

Population Action International: www.populationaction.org

Population Reference Bureau: www.prb.org

Population Services International (PSI): www.psi.org

PSP-*One* Project (formerly Commercial Market Strategies Project): www.psp-one.com

Reproductive Health Interchange: www.rhi.rhsupplies.org

Reproductive Health Supplies Coalition: www.rhsupplies.org

The Extending Service Delivery (ESD) Project: www.esdproj.org

The RESPOND Project (formerly the ACQUIRE Project): www.respond-project.org

UNFPA: www.unfpa.org

USAID: www.usaid.gov

USAID | DELIVER PROJECT: www.deliver.jsi.com

USAID | Health Policy Initiative (HPI): www.healthpolicyinitiative.com

The **USAID Contraceptive Security Team** works to advance and support planning and implementation for contraceptive security in countries. The team provides technical assistance to USAID missions, country partners, donors, and international partners. The team can be contacted c/o Mark Rilling or Alan Bornbusch, Commodities Security and Logistics Division, Office of Population and Reproductive Health, Bureau for Global Health, mrilling@usaid.gov or abornbusch@usaid.gov.

The **Reproductive Health Supplies Coalition** is a coalition of donors, multilateral organizations, private foundations, nongovernmental organizations, low- and middle-income country governments, and others dedicated to improving global health and the quality of life by ensuring access to high-quality reproductive health (RH) supplies. The coalition works to synthesize and share information, knowledge, and experience; improve coordination and harmonization of programs; and develop new tools and approaches to address the challenges of inadequate and unreliable financing for RH supplies, inefficiencies in supply systems; and inequities in access to RH supplies. More information can be found at (www.rhsupplies.org).

For more information, please visit deliver.jsi.com.

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