An Internet-Based Early Warning Indicators System for Preventive Policy

Abstract
A new SIPRI project, 'Early Warning Indicators for Preventive Policy', was launched at the end of 2002. The project, which combines a monthly expert survey, selected statistical data sets and Internet technology, breaks new ground in the field of early warning indicators. Processing survey and statistical data using a well-designed statistical indexing database will allow the creation of indicators that reflect negative national and regional, social, political and economic developments. The results will be made available on the Internet in the form of country-specific and regional reports. The pilot project will run for twelve months and focus on West Africa. It is funded by the Swedish Ministry for Foreign Affairs and will involve regional partners and organizations.

Predictability and prevention

Prevention is a theoretical concept based on prediction. Predictability is closely linked to information gathering and information analysis. Information gaps reduce predictability. There is no such a thing as a 'sudden crisis'; only a lack of information or analysis. At present, there is no generalized, global monitoring mechanism to allow the early identification of negative developments within countries. Media reporting is usually focused on crisis situations, by which time developments have already gone off course. It tends to be an ineffective way to keep track of negative developments. New information sources and methods must be applied to fill the gap and provide a basis for policy making which allows the early counteracting of negative developments.

Models of forecasting

Two methods or models are generally used to monitor and forecast developments in countries and in crisis regions. The database model is based on statistical indicators, often time series, provided on an annual basis by international organizations such as the World Bank or the United Nations. Early warning systems based on these indicators have been applied, for example, by the United Nations Development Programme and the United Nations Department for Humanitarian Affairs.

There are also models which use expert knowledge to forecast trends. The expert model bases its information on questionnaires and interviews, thus creating a separate set of indicators. Expert models often obtain information from a wide range of informants in a regular, quick and standardized way. Information sources include research institutes, embassies, non-governmental organizations (NGOs), 'fact-finding missions' and local networks.

Accurate and early prediction is crucial to all crisis prevention efforts. Combining the database and the expert model increases the accuracy of forecasts, since both short- and long-term data can be included in the analysis.

The project

SIPRI already provides much of the data that will be used in the project's statistical indexing model through the Internet portal 'Facts in International Relations and Security Trends (FIRST)', located at http://first.sipri.org. The other data to be used in the model will be provided by a monthly expert survey, thereby integrating both short-term and long-term data. Adding selected analytical tools, and further developing them, will enable SIPRI to provide higher-quality indicators for preventive policy.

Information required for an extended forecasting model

These information needs are related to short-term developments—data which cannot be obtained from country statistics, but only through observation of, for example, daily political and economic events. This information must be gathered at short, regular intervals—at least monthly—and is best gathered by means of a questionnaire. The design of this questionnaire is crucial and in-depth background research will be undertaken to ensure that it is designed properly. It is important to explore which short-term indicators are the best measurement for areas such as political and economic performance, security, ethnicity, social and humanitarian development, and so on. A choice will have to be made to determine the right indicators for the right areas. The phrasing of questions will have to be tested and piloted to ensure that the questions correctly capture the indicators and conditions we wish to measure. The structural causes of conflicts, their triggers and accelerators, will also have to be considered. Furthermore, since it is important to have a high and timely response rate to the questionnaire, we need not only to ask the right questions but also to keep the questionnaire short. It will have to be developed in close cooperation with our local experts.

Information sources

The regional experts are important information sources who must be fully utilized. Different questionnaires may be targeted to different groups. However, emphasis must be placed on regular and consistent participation. In the pilot project, local experts in West Africa will be used. The SIPRI project on military expenditure in Africa has already established a West African expert network which can be used for the early warning indicators project.

Information processing

Successful processing of information rests on three pillars. The first is relevance, which we guarantee through a well-designed questionnaire. The second is timing. Using Internet technology enables us to process large amounts of information almost instantly. The third pillar is the use of appropriate analytical tools. Our approach, therefore, is to gather information through an electronic questionnaire and immediately store that information in

a database. As previously mentioned, the questionnaire will be kept short, with probably no more than 30 questions. All but one of the questions will be quantitative, using a scale from 1 to 9. The qualitative question will be general and should address the respondent's overall judgement of the local situation.

The monthly questionnaire provides the input for a series of analytical tools. First, we can show trends in graphic form on the Internet for each of the indicators, providing alerts for negative developments in the specific areas monitored. Secondly, we can construct a predictive model from the indicators—both the long-term indicators from, for example, the World Bank or the United Nations, and the short-term indicators from the questionnaire—and thus obtain an overall 'crisis index'. Internet outputs from the model may be in numeric and graphic form as well as in report format. Country respondents' replies to the qualitative question will be included in the reports for each area and country, making these reports very specific.

Linkages and partnerships

At the regional level cooperation will be sought from both experts and organizations. As previously mentioned, SIPRI already has a network of experts in West Africa that will first be integrated into the project and then expanded. Contacts have already been made through a conference in Ghana organized by SIPRI and the African Security Dialogue and Research (ASDR). Cooperation will also be sought with other groups working in the field of early warning research.

Outcomes

The project intends not only to break new ground in early warning indicators research and applications, but also to create a basis for information exchanges with partners in Africa, thus building competence in the area of early warning indicators among the research community in West Africa. Through close involvement in the research process and the development of quantitative indicators and methodologies, we will not only raise awareness of the topic but also receive important input into specific regional issues and thereby develop better indicators.

Project time frame and financing

The major element of this project constitutes, in its one-year pilot phase, the design of the electronic questionnaire, the programming and testing of the database and the programming and testing of the analytical tools. Questionnaire and analytical tool design will require a great deal of research and information exchange with other research groups in the field. The pilot phase has been financed by the Swedish Ministry for Foreign Affairs.

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