



The Frederick S. Pardee Center
for the Study of the Longer-Range Future

A PARDEE CENTER RESEARCH REPORT

Connecting the Dots: Information Visualization and Text Analysis of the Searchlight Project Newsletters

**A PROJECT OF
THE FREDERICK S. PARDEE CENTER
FOR THE STUDY OF THE LONGER-RANGE FUTURE
AT BOSTON UNIVERSITY
WITH SUPPORT FROM
THE ROCKEFELLER FOUNDATION**

Professor Sucharita Gopal
and Professor Adil Najam

February 2012

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SEARCHLIGHT NETWORK

Anticipating and tracking long-term trends and novel research results is a critical component to understand the future of development and poverty. In addition to utilizing more widely known horizon scanning methods, the Research team at the Rockefeller Foundation has undertaken an innovative approach to generating applicable intelligence that emerges from a forward-looking, on-the-ground perspective throughout Africa, Asia, and the Americas. It is known as the “Searchlight” function — a group of forward-looking, regionally-focused horizon scanning and trend monitoring grantees that conduct regular, ongoing scanning for novel ideas, research results, and “clues” to where the world is evolving.

Each organization participating in the Searchlight network contributes to achieving these objectives by preparing monthly trend monitoring newsletters that reflect their points of view, areas of expertise, and knowledge of local conditions. Participating organizations create these newsletters by monitoring secondary sources in their regions — including academic journals, think tank reports, conference proceedings, newspapers, magazines, grey literature, and activities occurring in their own networks—and aggregate this trend analysis information for distribution to the Foundation and to the wider research, non-profit, and policymaking communities. More information can be found at <http://www.rockefellerfoundation.org/what-we-do/research-records>.



The Frederick S. Pardee Center for the Study of the Longer-Range Future

The Pardee Center serves as a catalyst for studying the improvement of the human condition through an increased understanding of complex trends, including uncertainty, in global interactions of politics, economics, technological innovation, and human ecology. The Pardee Center's perspectives include the social sciences, natural science, and the humanities' vision of the natural world. The Center's focus is defined by its longer-range vision. Our work seeks to identify, anticipate, and enhance the long-term potential for human progress—with recognition of its complexity and uncertainties.

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The Rockefeller Foundation's mission to promote the well-being of people throughout the world has remained unchanged since its founding in 1913. Today, that mission is applied to an era of rapid globalization. The Foundation's vision is that this century will be one in which globalization's benefits are more widely shared and its challenges are more easily weathered. To realize this vision, the Foundation seeks to achieve two fundamental goals in its work. First, it seeks to build resilience that enhances individual, community and institutional capacity to survive, adapt, and grow in the face of acute crises and chronic stresses. Second, it seeks to promote growth with equity in which the poor and vulnerable have more access to opportunities that improve their lives.

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ISBN: 978-1-936727-05-6

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This report was printed using 100% wind-energy on recycled paper.

Report design: www.neutra-design.com

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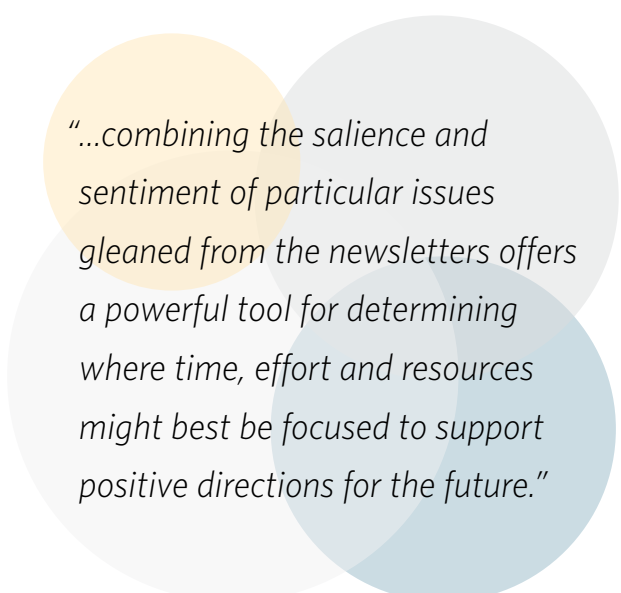
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Section 1: Introduction

Predicting what will happen in the future is always a perilous endeavor. No one can know with absolute certainty what will happen tomorrow.

Yet in the increasingly connected and globalized world, decisions made and actions taken today have implications for the future that need to be considered. We can see clearly how decisions and actions from the past 20, 50 and even 100 years are affecting the societal, economic and environmental challenges that confront the leaders and citizens of the world today. And there is keen awareness that how we address those challenges will have significant impacts on the lives of today's children and the generations that follow.

The work of Boston University's Frederick S. Pardee Center for the Study of the Longer-Range Future for the Searchlight Project, supported by the Rockefeller Foundation, is an effort to flag certain issues and areas where today's decisions and actions may be particularly salient to the direction of the future. With a clear understanding of the limitations inherent in our approach, we attempted to identify the signals of relevance for tomorrow out of the noise of today.



"...combining the salience and sentiment of particular issues gleaned from the newsletters offers a powerful tool for determining where time, effort and resources might best be focused to support positive directions for the future."

The Pardee Center team was charged with developing visual representations of the emerging trends from the Searchlight newsletters, which provide on-the-ground analysis of a variety of development issues in particular regions of the world. The key word here is *emerging* trends. Trend analysis exercises typically review the data, discount the weak signals and focus on the strong ones. But in looking at emerging trends, the Pardee Center team focused not just on the strongest signals or the loudest, but took note of weak signals that have the potential to become strong and thus evolve into significant levers of change. We looked for trends with significant amplification, suggesting the potential to trigger a possible future shift in direction.

Based on its interdisciplinary expertise, the Pardee Center team also made note of signals that were anticipated but absent from discussion in the newsletters (for example, external development assistance) and signals that came from a direction that was not expected (for example, climate change). The team felt these surprises are important to note because possible futures may be determined as much by what topics are not considered in decisions and actions as by those topics that are.

Ultimately, the Pardee Center's task came down to "connecting the dots" as they became apparent from the Searchlight newsletters. We connected the dots on both the regional and global scales, but always mindful of the context surrounding the issues as they were presented in the newsletters. We recognize that there are subjective aspects to this analysis, but some degree of subjectivity was necessary and appropriate.

In the pages that follow, we describe the mechanics of our work and tell the stories that emerged from our findings. The section immediately following details the methodology we used, which began with a careful reading by two team members of more than 300 articles in 99 Searchlight

newsletters. We describe how the issue categories were developed and how information found in the newsletters was translated into data that could be visually mapped in different ways.

The third section presents regional analyses and syntheses, highlighting issues of significance identified in the newsletters from Asia, Africa and Latin America.

Next, we discuss the apparent sentiment of the authors of various newsletters to discern the overall outlook for the future regarding selected issues. Are the authors optimistic or pessimistic, or neither? What can their outlook tell us about the direction we appear to be headed? In lieu of attempting to “predict” the future, the Pardee Center team chose to use author sentiment as a knowledge-based indicator of the directions we appear to be headed.

Finally, the last section of the report identifies “Trends Worth Watching” stemming from what we learned from the Searchlight newsletters. We discuss three issues — climate change, urbanization, and social resiliency or “motors of change”— from a global perspective while still acknowledging the significance of regional differences.

The trends selected for this section speak to the salience of these issues, in terms of their importance in bringing about major change. As discussed in more detail later in this report, combining the salience and sentiment of particular issues gleaned from the newsletters offers a powerful tool for determining where time, effort and resources might best be focused to support positive directions for the future.

The Pardee Center team approached this project by asking two fundamental “big picture” questions:

- Can we use contextual regional and national trends to identify and highlight emerging global trends?
- Can an appreciation of today’s great challenges help us identify actions for a better tomorrow?

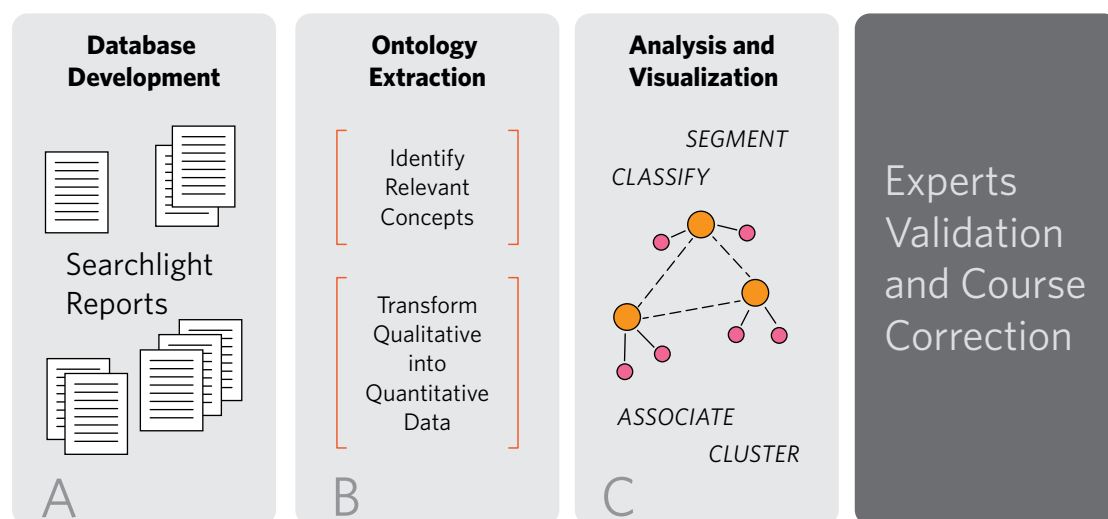
Only the passage of time — the arrival of what is now, to us, “the future” — will reveal whether the Pardee Center team’s findings presented here were useful and relevant. In the meantime, we hope this report sparks a larger discussion on the need to identify large-scale trends in areas of significance for the future, and the best methods for gathering and presenting such information to the decision-makers who can use it. If we meet this need, perhaps we can predict with at least a small bit of certainty that a better future awaits us all.

Section 2: Methodology

The Frederick S. Pardee Center for the Study of the Longer-Range Future at Boston University was one of three organizations from around the world selected to analyze and create visual representations based on information found in nearly 100 monthly Searchlight newsletters. These newsletters outline emerging trends and signals on selected development issues (poverty, donor issues, social, economic, political, environmental, science, technology, and innovation) in particular regions of the world. Throughout the report, specific newsletter articles will be referenced by a number assigned to them. The key to the newsletter article numbering system is found in Appendix A. For example, reference 1 refers to a newsletter produced by the Center for Democracy and Development (CDD) titled *Technology and the Cost of Elections in West Africa* referenced by the year and volume number of publication denoted as CDD_Apr2010_1.

The Pardee Center team developed a project-specific methodology and software to score, analyze and visualize information presented in these reports (Figure 2.1). The project goal was to textually identify and visually represent the key ideas and themes emerging from regional trend analyses in a way that is user-friendly, globally accessible, visually interpretive, policy relevant, and useful. The trends were analyzed for the signals they send about each region, but were also reviewed collectively to extract signals that may be of significance on a global scale.

Figure 2.1 Searchlight Report Synthesis Methodology



The Pardee Center team's three-part methodology included:

a) Database Development: Creation of a database of the reports, and coding and scoring of the reports in a standardized way.

b) Ontology Extraction: Using ontology extraction, identify relevant concepts to transform qualitative text data into quantitative (categorical, nominal, and ordinal) data for analysis.

c) Analysis and Visualization: Use of statistical and data-mining algorithms (classify, segment, associate and cluster) to extract patterns/trends and conceptual linkages from reports. Visualization includes selection and use of suitable visualizations to show distribution, patterns, and trends.

2.1 A THREE-PHASE APPROACH

There were a total of 316 articles derived from 100 newsletters developed by 10 separate organizations. Table 2.1 shows the organizations and their regional breakdown. Of all of the articles published, a majority were from Africa and Asia while the Middle East and the U.S. had the fewest number.

Table 2.1 Searchlight Articles Reviewed for Analysis

REGION	Newsletter Publishers	Total Articles
AFRICA	Center for Democracy and Development	140
	Society for International Development	
	South Africa Node of the Millennium Project	
ASIA	Intellectap	126
	Lee Kuan Yew School of Public Policy	
	NISTPASS	
	Noviscape	
	Strategic Foresight Group — South Asia	
LATIN AMERICA	FORO Nacional Internacional	43
MIDDLE EAST	Strategic Foresight Group — Middle East	20
UNITED STATES	Rand Corporation USA	4
TOTAL ARTICLES REVIEWED		333

Our methodology, shown in Figure 2.1, consists of the following steps:

- Database development from reports and ontology extraction
- Dataset creation and visualization
- Analysis and synthesis

The Pardee Center team created a shared database and a shared file system used by research analysts to store articles, code sheets, software, and visualizations. Each article was carefully read and scored by two people.

Figure 2.2a
Primary Concept
Categories

ECONOMY
ENVIRONMENT
SOCIAL
ENABLING

Figure 2.2b
Secondary Concept
Categories

Economic Development
Economic Production
Environmental Risk
Equity Issues
Governance
Health
Human Settlements
Knowledge & Technology
Security
Society
Sustainability

In the initial phase, we defined a newsletter scoring ontology consisting of four primary concepts and eleven secondary concepts, as shown in Figures 2a and 2b. The “enabling” primary category was added to capture factors that enable development such as technology, policy, etc.

For the next level of finer grained categorization (Figure 2b), 11 second-level concept categories were chosen based on the topics recorded from the subset of articles. Note that each newsletter article usually involves a discussion of more than one concept and hence could fall into two or more concept categories.

Each of the 11 second-level categories can also fall into more than one of the top level categories. For example, an article on agriculture can be coded under *economy* in Figure 2a and *economic production* in Figure 2b. In addition, if the article discussed the plight of the landless laborers and rural-urban migration, additional coding will now include categories *social* in Figure 2a and *human settlements* in Figure 2b. Thus, the methodology provided a mechanism to capture the complex and rich semantic meaning behind a particular Searchlight article.

For the second iteration, all newsletters were read, coded and scored in a detailed level in terms of topics, concept categories, and geographic information. This coding and scoring system provided the means to visualize a snapshot of the primary and secondary concepts’ synthesis across all articles. In addition, the author’s sentiment on each topic was recorded using a seven point scale ranging between -3 (very negative) and 3 (very positive). For detailed discussion of the coding and scoring procedure and sample scoring sheets, see Appendix B.

The last phase of the project methodology encompassed analysis and visualization, including:

GLOBAL AND REGIONAL ANALYSES:

From a global perspective, what is the range of issues being discussed in the Searchlight reports? What is their regional distribution? What are the major trends? Are there emerging topics?

SENTIMENT ANALYSIS:

How does sentiment of the newsletter authors vary across regions? What topics garner the most positive and negative sentiments? How does sentiment tracking help us to take the global pulse?

TRENDS WORTH WATCHING:

Which specific topics were particularly salient in the reports? What can these trends tell us about potential future directions?

In the following sections, we attempt to answer these questions.

Table 2.3 Types of Visualizations Used in This Report



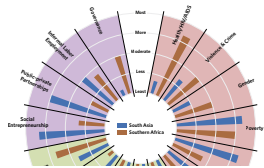
Treemaps:

Treemaps are tiled diagrams that capture the relative numbers of different categories contained within data. They can categorize data on one level (Figure 2a) or multiple levels (Figure 2a categories broken into Figure 2b categories). Each data point is represented by a tile. The concepts are differentiated by color.



Sentiment Histograms:

These diagrams represent the author sentiments for each data point in increasing order. Each bar on the sentiment diagram represents one data point. By looking at the area under and over the zero line, the general sentiment (generally positive or negative) on a given topic can be viewed.



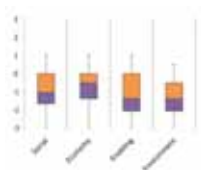
Differentiation Diagram:

This diagram allows for differentiating regions along multiple dimensions of a particular topic (such as urbanization). Each colored section represents a dimension, and the size of the individual bars for each region represents the salience of each attribute related to the dimension in that region.



Dashboard Diagram:

This diagram allows for displaying sentiment concerning the motors of change where the total weight of the concept is displayed as a number and the color of the dial indicates the sentiment value (-3 to 3) giving a visual representation of change agents.



Boxplots:

This chart plots descriptive statistics, the range of the distribution (highest and lowest values) as well as lower quartile (Q1), median (Q2), and upper quartile (Q3). Boxplots display differences between populations without making any assumptions of the underlying statistical distribution: they are non-parametric.

Section 3: Regional Analysis

From a regional perspective, what is the range of issues being discussed in the Searchlight newsletters? What is their regional distribution? What are the major trends? Are there emerging topics?

Searchlight reports vary in number across regions. There are more reports on Africa and Asia than South America. There are fewer reports from the Middle East and the least from the U.S. as seen in Figure 3.1. Some issues such as the discussion related to drivers of food security spans a regional scale, i.e., the Greater Horn of Africa [333], while the problem of sanitation waste is being discussed at a neighborhood scale, i.e. Orangi township slum in Karachi [123].

The Searchlight newsletters cover a wide variety of topics, ranging from democracy in the Andes [78] to doctors “buying out” of compulsory rural service in Thailand [300]. Each report was scored using the broad first-level concepts — social, economy, environmental and enabling factors. As Figure 3.2 shows, reviewed collectively, the newsletters contain articles that are focused more often on social issues when compared to the three other broad categories. While the first level concepts are useful in establishing a macro perspective, the Searchlight newsletters provide a more detailed perspective of what is happening across the globe. Thus additional visualizations at finer levels of resolution are provided by the second-level concepts in Figure 3.3.

Figure 3.1 Regional Distribution of Searchlight Reports

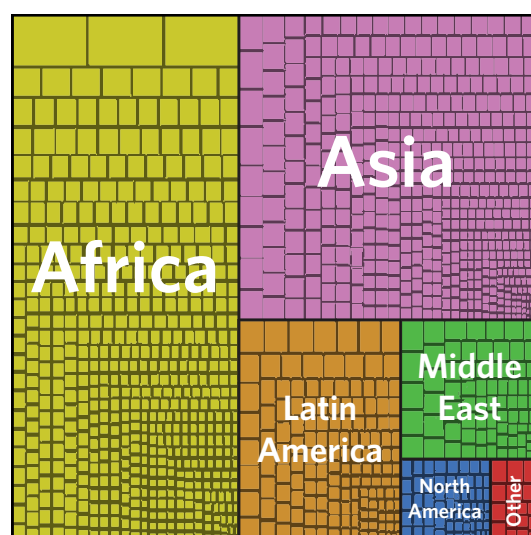


Figure 3.2 Four Primary Categories of Searchlight Reports

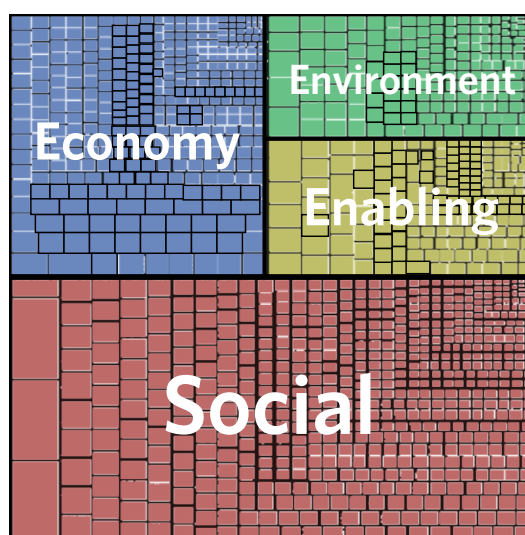


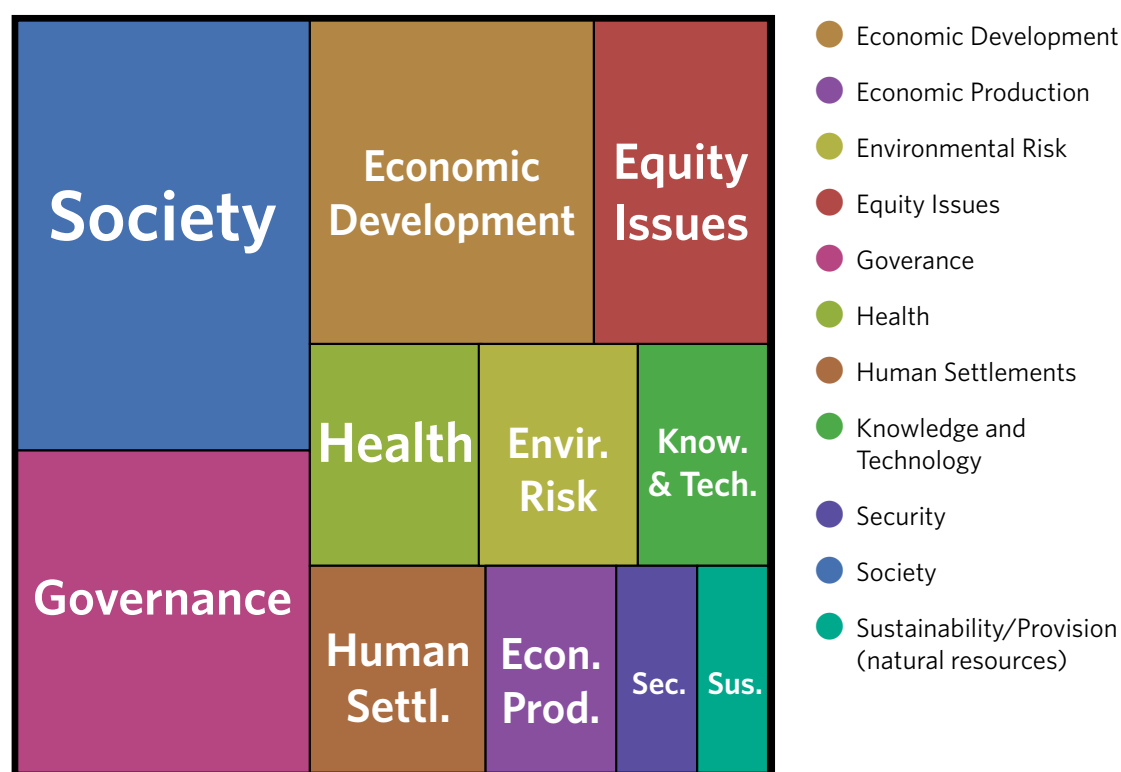
Figure 3.3 *Eleven Secondary Categories of Searchlight Reports*

Figure 3.3 shows the distribution of the 11 second-level concepts including society, equity issues, health and human settlements. This figure highlights two important issues: First, identifying the top-level hierarchy alone is insufficient to understand the nuance of development in different regions. Society, governance, and economic development are equally important in Figure 3.3, illustrating that “development” is not one single concept but a mixture of overlapping issues at a micro level.

Second, regional views shown in Figure 3.4, 3.5, and 3.6, shown on page 10, add additional data on specific regional perspectives and emerging trends. The major surprise here was the size of governance in Latin America and the smaller size of governance in Africa.

3.1 REGIONAL PERSPECTIVES

A majority of the reports describe the problems as well as highlight what is working and not working in the study regions. This method of presenting “on the ground” perspectives through regional newsletters is a very useful model that would be of great benefit if applied to additional regions outside the scope of the Searchlight project.

AFRICA

Major emerging themes center on gender, AIDS, foreign direct investment (FDI), the influence of China, sustainability and environmental risk in the light of climate change, and governance (Figure 3.4, p. 10).

- **Gender:** The topic of gender inequity permeates through several West Africa Insight reports [46, 36, 47, 48, 324], including strategies that can mitigate this serious situation [43, 49, 324]. In addition, the condition of vulnerable children is also addressed [24-26].

- **AIDS and other Public Health Challenges:** Health is perceived as a basic human right as it impacts well-being, quality of life, and economic productivity. The tone in the articles shows a shift to a deeper examination of legal issues, government policy, and public education campaigns targeting HIV/AIDS, malaria, and maternal health [54, 112, 326].
- **Foreign Aid:** With developed countries debating fiscal restraints and austerity measures, African countries are looking elsewhere for their own economic development. African countries are expecting more from their South-South dialogues [237], better regional cooperation [237], especially the role of South Africa as a key investor in Africa [232, 237], innovative financing for development [235], and the role of non-profit organizations such as the Gates Foundation [232] to tackle pressing problems such as climate change and health.
- **The “China Syndrome”:** China’s footprint in Africa is described in several SA Node reports [202, 213, 232, 237]. China is a major market, contractor, and investor as well as a donor in Africa. The sentiment around Chinese presence in Africa is viewed positively with some exceptions related to land grabbing, true technology transfer, and capacity building in Africa.
- **Sustainability:** Several articles highlight the major hurdles in Africa’s quest of sustainable development including poverty [232, 321], food insecurity [336], attaining education goals [45], conflicts [32], sustainable forestry [17, 21, 200], and environmental problems [18, 33]. For many, the panacea seems to be technology including mobile phone SMS [249, 326].
- **Climate change:** Climate change is used as an explanatory (or conceptual) framework to explain a variety of social (rural-urban migration, climate change wars) and environmental process (temperature or rainfall variability) issues. One study [238] notes that there is a causal connection between climate warming and civil violence in Africa.
- **Other issues** discussed in the reports include commitments to Copenhagen Accord, Reducing Emissions from Deforestation and Degradation (REDD) deals, adaptation strategies [210], and impact on agriculture and fisheries [328].
- **Governance:** There are several national perspectives on governance including Nigeria, Togo, Côte d’Ivoire, Niger, and Liberia. Running free and fair elections [4, 6] and corruption [3, 12, 14] are topics worth noting.

Climate Change is an emerging explanatory framework in future studies addressing a myriad of problems involving both social and physical systems.

ASIA

In Asia, the major buzz seems to be around building better urban infrastructure in slums and cities, digital education, social entrepreneurship, equity and digital governance (Figure 3.5, p. 10). In general, the articles resonate with a positive perspective for the future.

- **Education:** The topic of education has gained traction in many countries of Asia with emphasis on quality [293], educating girls [310], teacher to pupil ratios [293], nonformal education [285], and vocational training [173]. Such nuanced discussions on education shed light on what is wrong in the present system and how to fix it.

Figure 3.4 Africa: Four Primary (left) and Eleven Secondary Categories (right)

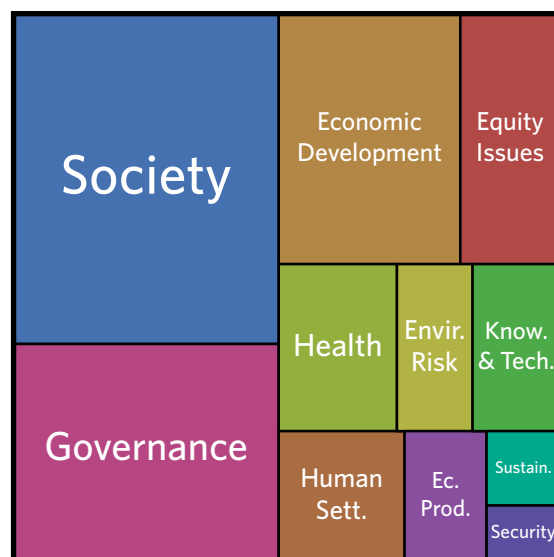
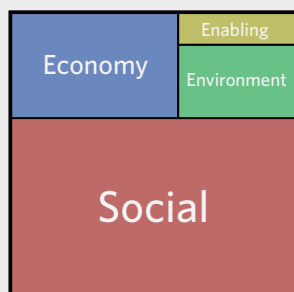


Figure 3.5 Asia: Four Primary (left) and Eleven Secondary Categories (right)

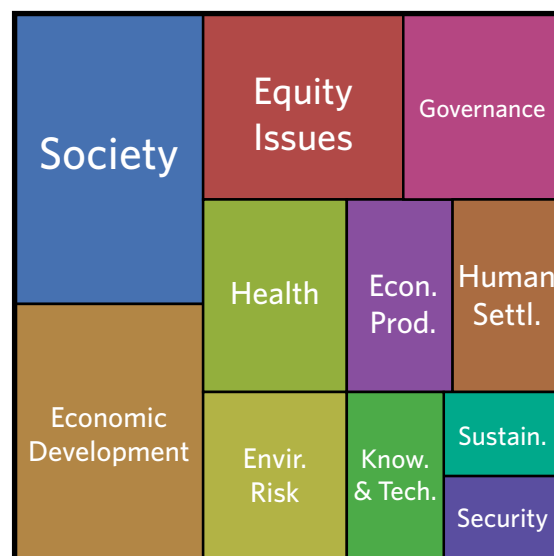
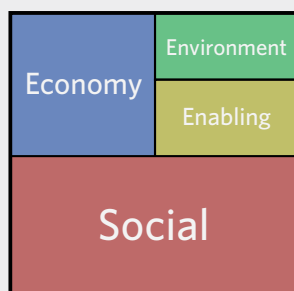
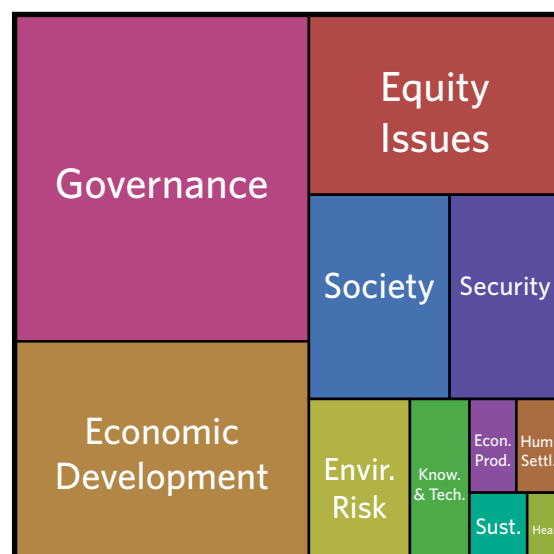
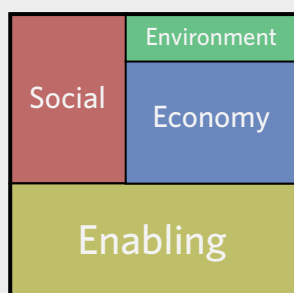


Figure 3.6 Latin America: Four Primary (left) and Eleven Secondary Categories (right)



- **Urban Slums:** There is a growing realization that slums cannot be eradicated but living conditions in them can be improved especially resources/facilities [114], water access [115], and education [285]. In addition, there is a growing realization of the benefits of public-private partnerships in alleviating poverty and improving quality of life for poor citizens. This trend is noteworthy in the case of provision of basic services [118], education [153], and healthcare [128].
- **Social Entrepreneurship:** An important global trend is the impact of social entrepreneurship to bring about change. In South Asia, social entrepreneurship is offering a range of solutions from employing rag pickers in the slums [280] to urban transportation sustainability and incubating future entrepreneurs [149].
- **Equity Issues:** Equity in access to health care, financial institutions, water resources, technology [153], and education are perceived as major problems in Asia [111, 128]. In addition, property ownership [282], physician/patient and teacher/pupil ratios, and labor force differentials vary regionally [303] leading to inequities that further exacerbate social tensions.
- **Governance:** The recent popular uprising in Egypt and the Middle East and the “Arab Spring” demonstrated the utility of social media in mobilizing the political unrest in toppling their despotic leaders and dictators. However, this is not the first time that the public has been mobilized using digital media. It happened in SE Asia the previous year as captured in a series of Searchlight articles [182]. Searchlight authors view technology’s role in digital politics positively, a trend that is validated by recent events in the Middle East.

LATIN AMERICA

Latin America is somewhat different compared with Asia and Africa (Figure 3.6, p. 10) in terms of its emphasis on governance, with discussions centering on the state of democracy [78], corruption [94], social inclusion in democracy [72], freedom of expression [74], and social protest [103]. There is also growing realization that regional cooperation is absolutely essential to solve crime as well as development issues [93, 94].

Economic development in South America mirrors global trends — booming trade in biofuels [75], and organic farm products [82]. Other topics related to economic development include informal employment options [83, 86] that provide sustainable livelihoods to many groups. Thus these two new trends in biofuel production and informal economy provide positive signals given the bleak financial environment in North America and perceived lack of aid from the U.S.

In summary, Searchlight articles provide snapshots of trends — increasing emphasis on education and social reform in South Asia, governance and trade in Latin America, and health care, fair and free elections and the rising influence of China in Africa. The positive buzz about social entrepreneurship and public private partnerships are in strong contrast to cynicism around foreign trade and corruption.

Section 4: Sentiment Tracking

The need to make decisions and take action with the future in mind while being unable to accurately predict that future presents a paradox: how do we factor the unknown turns of tomorrow into a deliberate course being set today?

Table 4.1 Sentiment Tracking Categories

• Economic Development	• Governance	• Security
• Economic Production	• Health	• Society
• Environmental Risk	• Human Settlements	• Sustainability/Provision
• Equity Issues	• Knowledge and Technology	(natural resources)

Using a novel application of a concept commonly used by social media sites and advertisers, the Pardee Center team chose to track the apparent sentiment of the authors of newsletter articles as a means of gleaning some insight into the perceived outlook for the future on selected topics, listed below. Sentiment tracking offers a valuable and insightful synthesis of the Searchlight newsletters that can provide planners, NGOs, and other stakeholders a basis for making decisions. The sentiment of these knowledgeable observers can serve as a type of barometer for where the future is currently headed.

“The sentiment of these knowledgeable observers can serve as a type of barometer for where the future is currently headed.”

To derive author sentiment, a scale was developed to rank the sentiments from strongly negative to strongly positive and the results were normalized and aggregated for a number of specific issue areas. Two analysts scored each article for deriving the sentiment index. This tool is different from the social media sentiment tools that simply aggregate emotional nuance of consumers likes and dislikes; this application is based on other standard research applications and geared to the Searchlight context. More specific details of the methodology are discussed in Appendix B. Following is an analysis of the results.

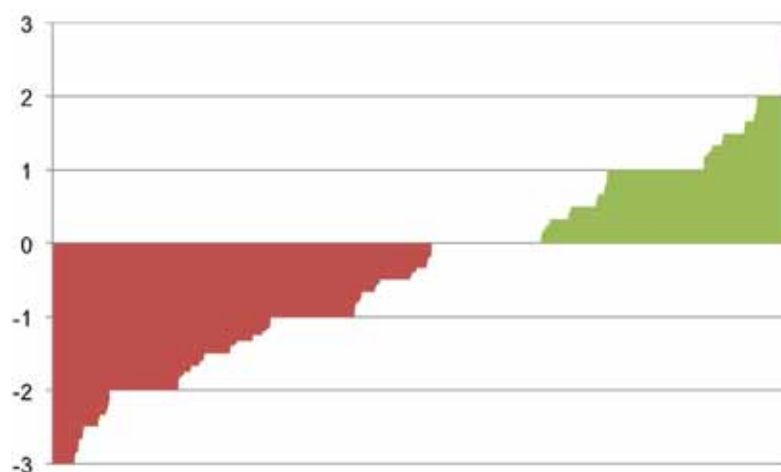
4.1 SENTIMENT TRACKING — THE GLOBAL VIEW

What does sentiment tracking reveal about the state of the world? Are there particular issues or regions where negative sentiment dominates? What elicits a positive view?

Searchlight authors were asked to critically evaluate the issues in their regions and report current and future trends, and to identify areas where philanthropic intervention could be helpful. Given the number and scale of challenges facing the global community, the Pardee Center team anticipated a stronger degree of pessimism than optimism overall.

In the aggregate, as Figure 4.1 shows, there is, in fact, a stronger sense of pessimism than optimism overall. However, in several of the individual categories, sentiments were mixed. There was an overall optimistic perspective in just one category — knowledge and technology. This suggests that the advance and spread of technology is viewed as an important component in achieving a better future. Sentiment tracking is analyzed by categories and regions.

Figure 4.1 Searchlight Authors' Global Sentiment Distribution



4.2 SENTIMENT TRACKING BY CATEGORIES

When analyzing author sentiment in each region of Searchlight newsletters (Figure 4.2, p. 16), the positives are interesting given the nature of the global economic upheaval in 2008-2010. But the negatives outweigh the positives, except in the Middle East (where the opposite is true). Many developing countries saw a dwindling of their foreign aid and international assistance but have focused on public-private partnerships, regional cooperation, and local social entrepreneurship as a means to overcome economic hardships. However, the sentiment analysis has to be viewed in the context of the task that was posed to the Searchlight grantees, who were asked to identify trends and areas where the philanthropic sector could intervene. Hence there is a bias towards the negative in all Searchlight newsletters.

SENTIMENT TRACKING BY CATEGORIES

There are 11 categories that capture the nuance of sentiments shown in green (positive) and red (negative). Figure 4.2 shows all sentiment tracking by category for comparison.



Economic Development: Economic development seems to reflect a balance of both moderately positive and negative sentiment rankings. African Searchlight reports that received highest negative sentiment revolve around high food prices and social equity in Burkina Faso [59], improper disposal of toxic waste [33], and maternal mortality due to inadequate health systems and access and quality of reproductive services [53]. In general, negative sentiments revolve around food inflation, rural food shortages, food security, poverty and wages, transportation and infrastructural problems that are common in all regions.



Economic Production: Global negative sentiment outweighs the positive in economic production. This category includes factors affecting agricultural, marine, and industrial production. For example, three articles on palm oil trade [57, 158] describe the continually increasing production of palm oil that has long-term impact on ecological diversity (as more and more land is being cleared for its cultivation), economic dependence on one crop for export, and its impacts on traditional livelihoods. Since palm oil is either processed (high in saturated fats) or hydrogenated (trans-fats), the authors view its production as a bleak and negative trend.

Other reports offer a clear view of a variety of factors giving rise to negative sentiment in economic production in Syria [260], land degradation in Bangladesh [286], and development and fisheries in Southeast Asia [159, 180, 308].



Environmental Risk: Not surprisingly, negative sentiment outweighs the positive in environmental risk including climate change. Problems range from worsening environmental conditions impacting agriculture and food security to health, natural utilization and biodiversity. More specifically, agriculture in Côte d'Ivoire [8], land degradation in Bangladesh [286], and food crises due to severe regional droughts in East Africa [333] validate the negative sentiments. The looming global crises centered on water use and climate change are described well in the context of Southeast Asia [179].

A serious concern is the connection between environmental issues and human health as seen in Benin [54], the rise of malaria in India due to erratic monsoons [112], as well as in processing the increasing e-waste [156].



Equity Issues: Searchlight reports describe equity issues in terms of wealth, vulnerability, gender, social class, age, religion, caste and ethnicity. In most cases, the negative sentiment outweighs the positive. This is exemplified in the discussion of food insecurity in India [294] and post-racial urban South Africa [330].



Governance: Governance at various levels including local, state and federal are discussed from the perspectives of corruption, elections and stakeholder participation. While governance discussion in Latin America is focused on high level corruption, crime organization, violence against the press, and freedom of expression, governance issues in Africa center around high level corruption, violence and brutality, civil wars, and political turmoil.



Health: The old adage states “health is the wealth of nations”; if this is the case, the global view is dim. The issues of concern include disease incidence, mortality [54, 279], hunger and malnutrition [327], communicable diseases [321], sexually transmitted diseases [26], health insurance [305], and access to health care [55, 311].



Human Settlements: Rural-urban migration is exploding in many parts of the world caused by climate change, land “grabbing”, land tenure policy, and globalization. Searchlight articles discuss the plight of the moving masses [129] and the urban poor [24] — including children who are destitute [25] — in the Niger Delta and Senegal. In addition, the problems caused by the impact of increasing population on housing, infrastructure and transportation also leads to negative sentiment in cities such as Kanpur, India [113].



Knowledge and Technology: Positive sentiment far outweighs the negative, and this category is really viewed as a panacea for all global woes. Nowhere is it more evident than in digital politics and elections in Africa and Southeast Asia [184]. Health is another category that is receiving a boost from the application of innovative technologies [316].



Security: Searchlight articles discuss the many facets of security including how environmental change can affect human security or how food security is impacting rural to urban migration. Security of one type or other is a theme in many articles.

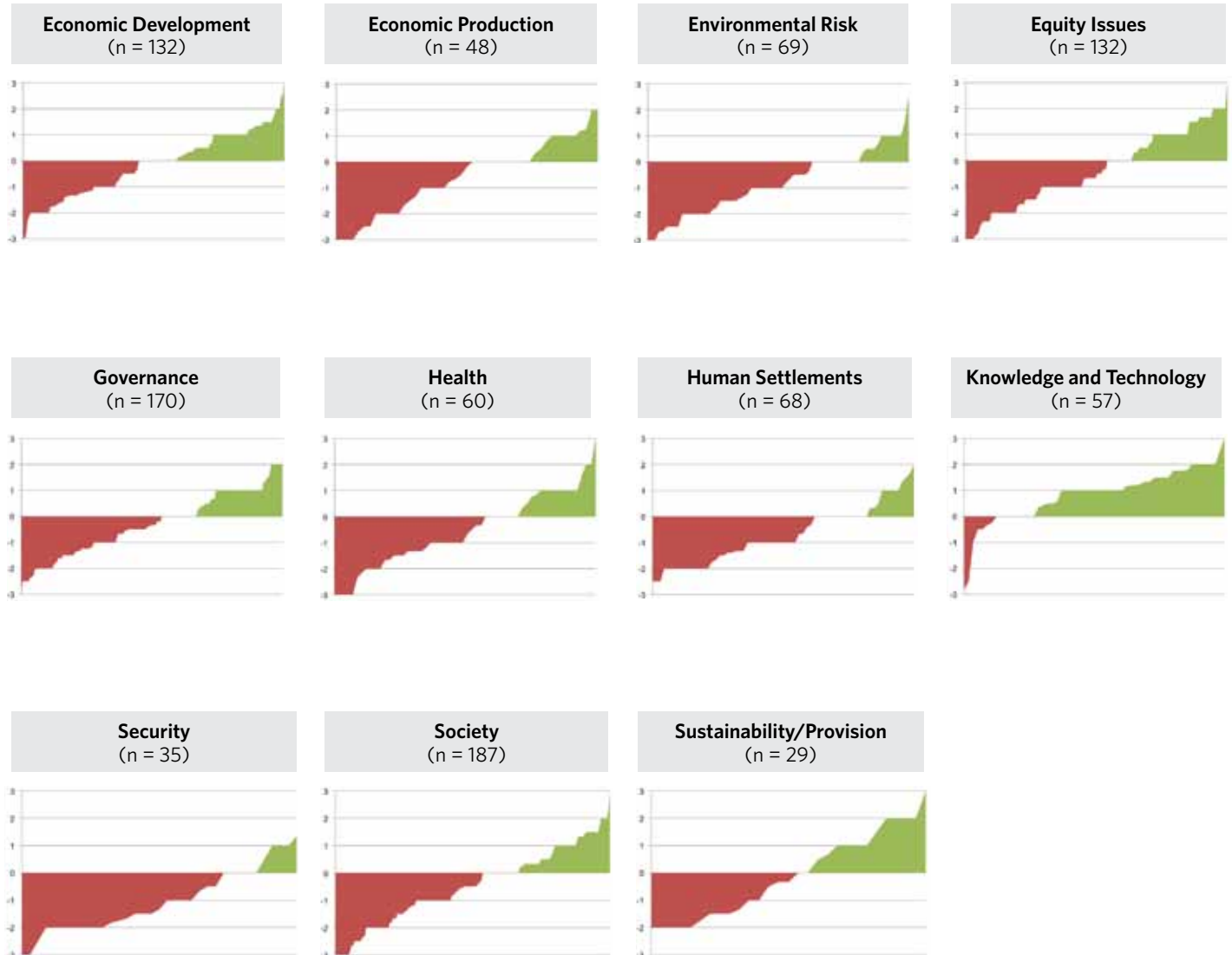


Society: Negative sentiment outweighs the positive in societal matters. This category includes education, health, demographic factors and food provision that are all seen as lacking, insufficient, or unequally distributed.



Sustainability/Provision: Sustainability/Provision seems to reflect a balance of both moderately positive and negative sentiment rankings. A great deal of interest centers on creating sustainable natural and urban environments as well as preserving sustainable balances in using natural resources. For example, issues related to biodiversity conservation in South Africa [198] and transport infrastructure in India [150] both demonstrate the extreme challenges that seem unattainable leading to negative sentiments.

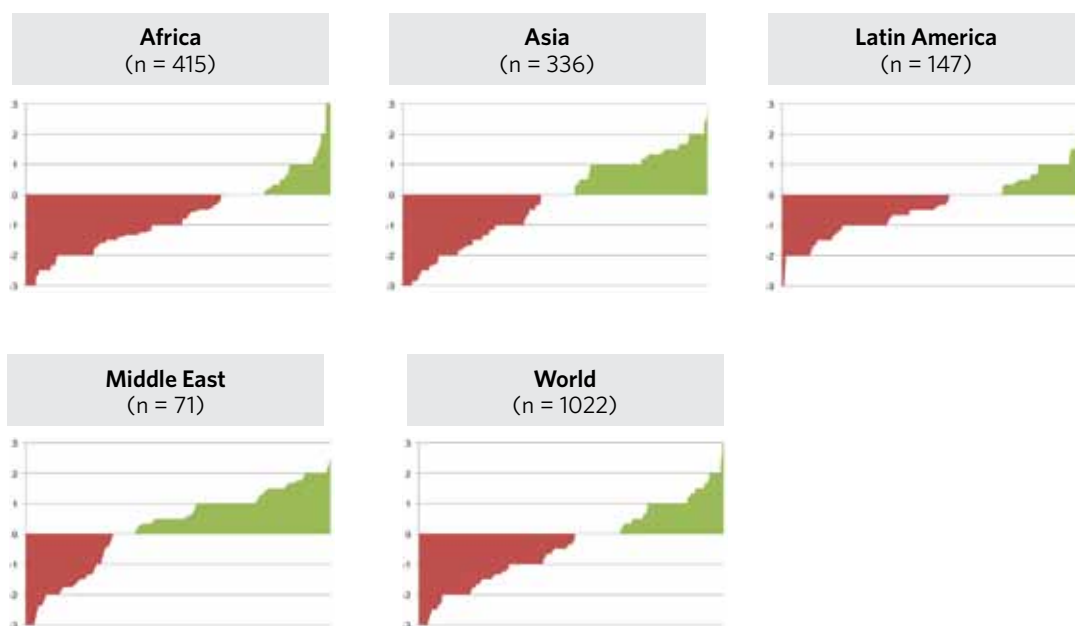
At the same time, alternative energy, recycling and sustainable agriculture are showing promise and leading to a moderately positive outlook. Innovation in renewable solar energy use in the Middle East [264], generating hydroelectricity using PICO technology [161], large scale recycling in the West Bank [269], and the rise of urban agriculture and sustainable farming practice adoption [270] all demonstrate the positive trajectory in this realm.

Figure 4.2 Searchlight Authors' Sentiment Distribution by Categories (n indicates number of reports)

Overall, all categories, with the exception of knowledge and technology, are skewed towards negative sentiments. While sustainability and economic development show a moderate skew, all the other categories show a more marked negative sentiment.

4.3 SENTIMENT TRACKING BY REGIONS

Figure 4.3 shows author sentiment in each region of Searchlight reports. Again positives are interesting given the nature of the global economic upheaval in 2008-2010 but positives are underweighted compared with negatives except in the Middle East (where the opposite is true).

Figure 4.3 Searchlight Authors' Sentiment Distribution by Regions (n indicates number of reports)

Many developing countries saw a dwindling of their foreign aid and international assistance but have focused on public-private partnerships, regional cooperation, and local social entrepreneurship as a means to overcome economic hardships.

What promotes a positive outlook? It ranges in scope from something small such as a phone application for health to a large-scale regional boom in biofuel production. Positive sentiments could result from a change in policy (e.g. land reform), some new educational strategy, alternative energy sources, microcredit and financing, and regional cooperation. Experts see myriad opportunities to improve societal outlook.

What negates the positives and results in a more pessimistic view about the state of the world? Corruption, violence and brutality, and civil wars are common to all regions as well as social and economic inequities. While negative sentiments in Africa are related to migration, gender and health (HIV/AIDS) issues, the situation in Asia suggests social inequities, urban infrastructure, food prices and climate change impacts on health are to blame. In Latin America, negative sentiments are anchored by child labor, food security, resource conflicts, and financial insecurity.

Further perspective is obtained examining the statistical distribution of sentiment distribution across positive and negative rankings in various regions displayed in Figures 4.4 and 4.5 (p. 18). These box plots provide descriptive statistics, namely the range of the distribution (highest and lowest sentiment values) as well as lower quartile (Q1 in purple color), median (Q2), and upper quartile (Q3 in orange color). Figure 4.4 shows the sentiments of primary categories for Africa, Asia and Latin America. The median value for all primary categories is in the negative territory. The only exception is the enabling category in Africa where the median value is positive indicating a larger range.

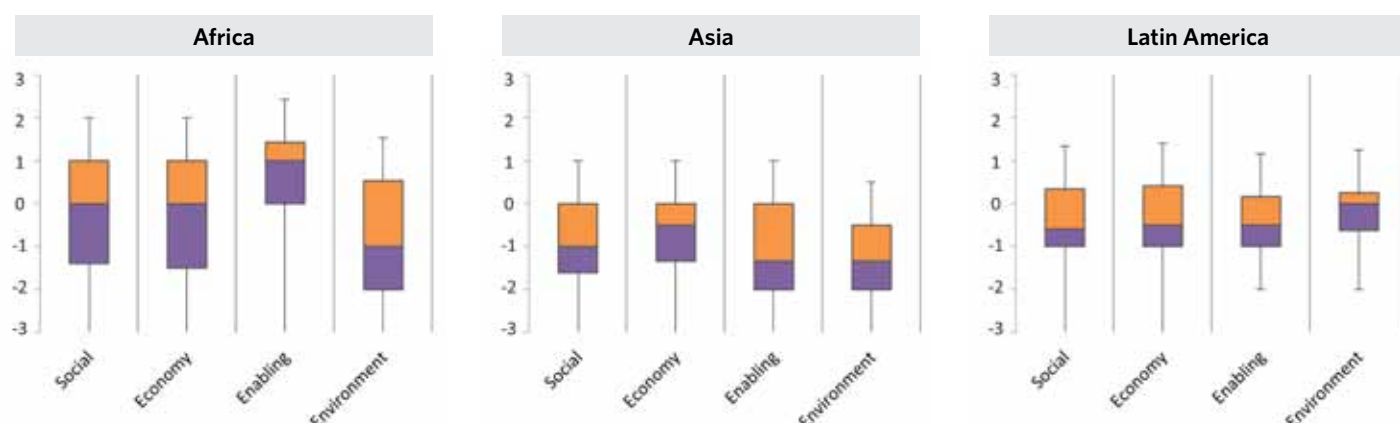
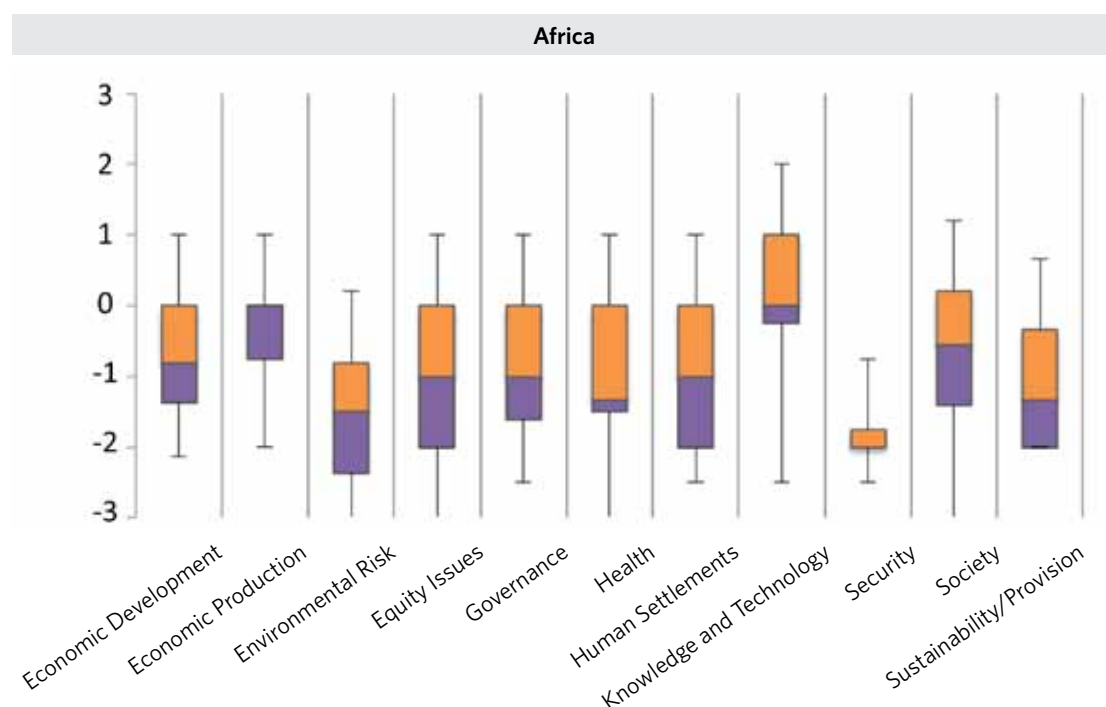
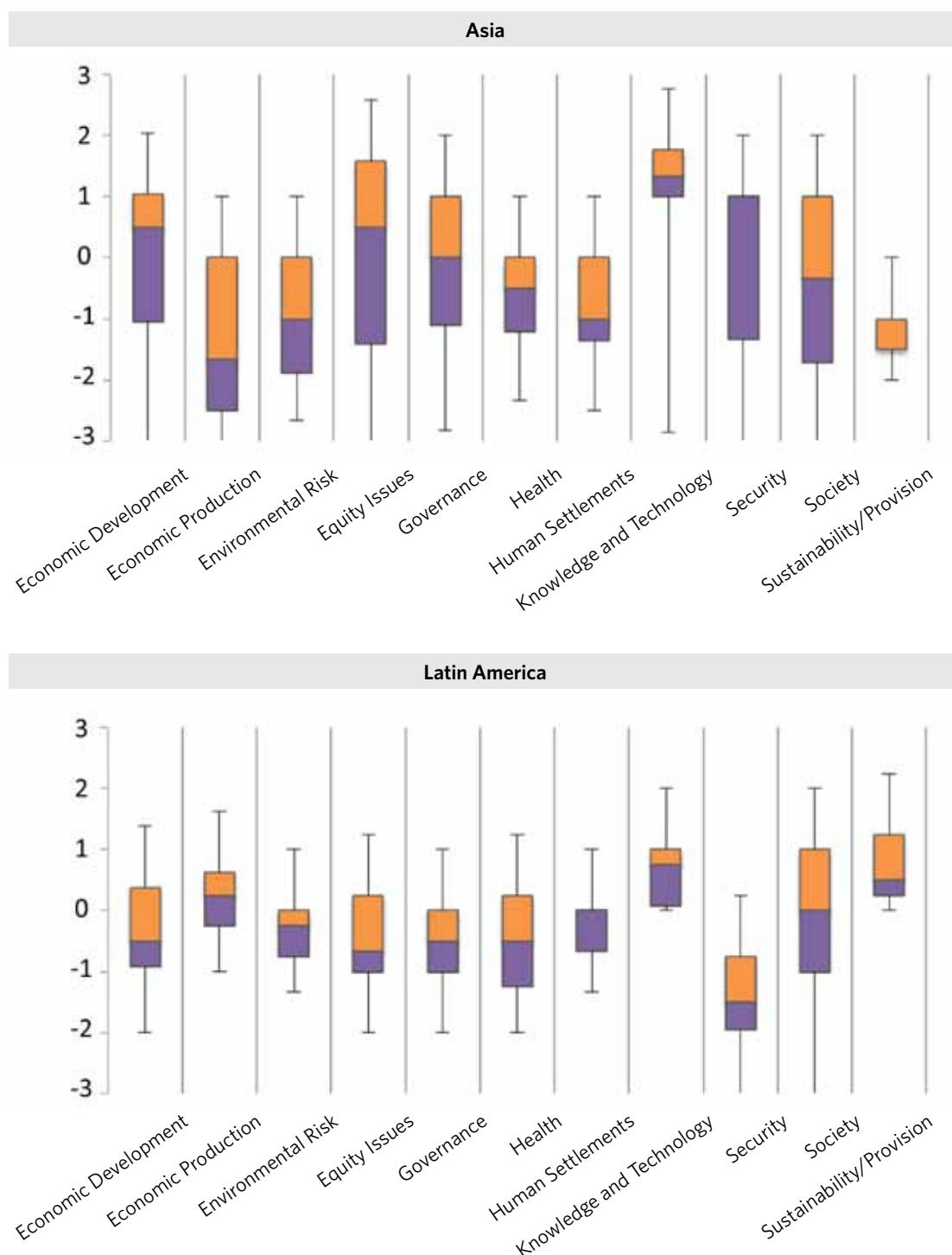
Figure 4.4 Searchlight Authors' Sentiment Distribution of Four Primary Categories

Figure 4.5 demonstrates the wide variation in sentiment; for example, governance has a wider range of sentiments. Least variation is seen in the context of sustainability in Asia and security in Africa. In addition, the distribution in Asia covers some positive territory in several sectors such as equity, economic development and knowledge and technology. This is in contrast to Africa where distributions are anchored in the negative territory. This suggests that programs and projects need to be developed in the negative sentiment categories to help alter the negative perceptions and create both opportunities and momentum for positive change.

Figure 4.5 Searchlight Authors' Sentiment Distribution of Eleven Secondary Categories



To summarize, the Pardee Center team uses sentiment tracking in a novel way that offers a valuable and insightful synthesis of Searchlight reports. This information can provide planners, NGOs, and other stakeholders a clear snapshot of current impressions of dynamic issues, where the positive momentum lies, and thus serve to aid in making decisions about policies and programs. One can differentiate between what is eliciting a positive or negative response in time and take the necessary action. In the current scenario on a global scale, knowledge and technology is the only category that is perceived to bring about positive economic and social change.

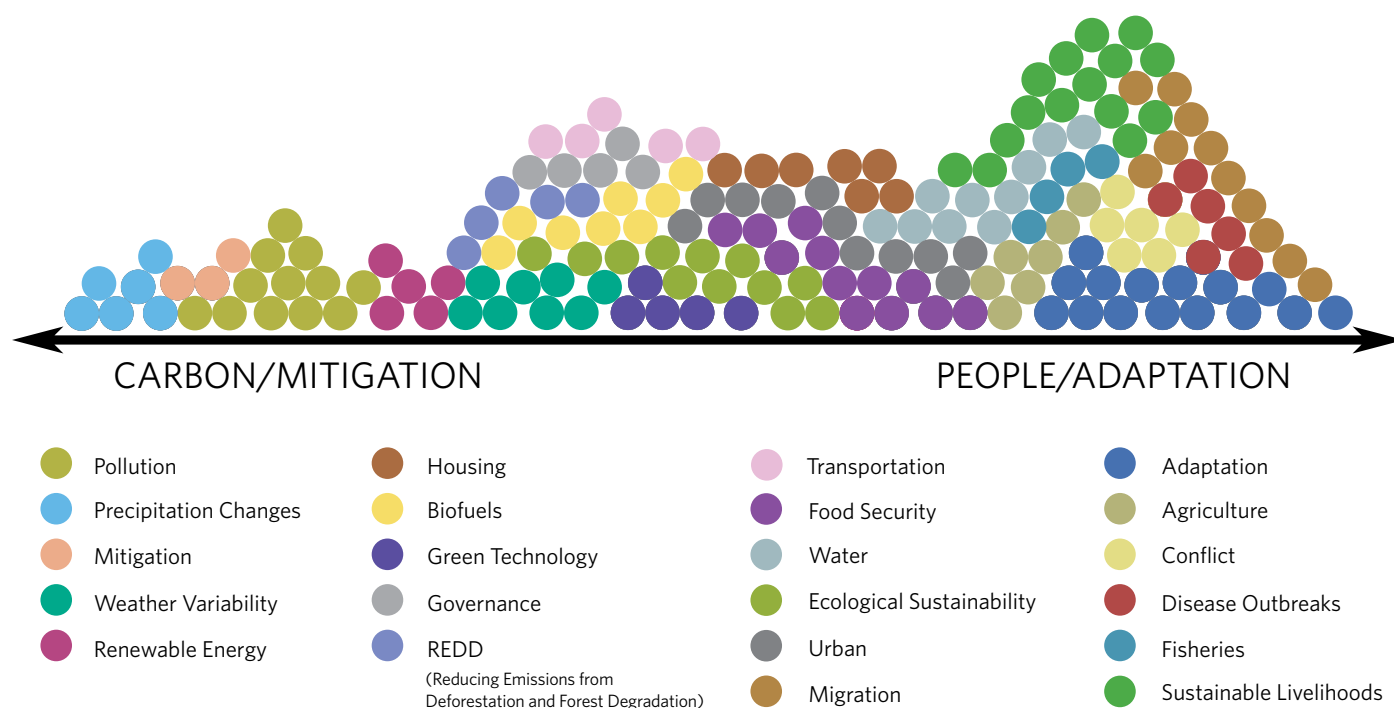
Section 5: Trends Worth Watching

In reviewing the newsletters, the Pardee Center team paid particular attention to what we call “trends worth watching” based on their salience to the future — that is, the relative importance an issue presented in newsletter articles in terms of its potential impact and ability to affect the direction the future. Three such trends stood out and are described in detail below: climate change, urbanization, and social resiliency or “motors of change.”

5.1 CLIMATE CHANGE

The newsletters collectively capture the tone and nuance of how climate change is being talked about in the developing world, and there is a very clear contrast to how the issue is discussed in the industrialized world. While the debate in developed countries has focused on carbon-based mitigation efforts (i.e., reducing tailpipe and smokestack emissions), the focus in countries described by Searchlight newsletters is one of human adaptation and impacts on livelihoods, sustainability, and living with the realities of climate change.

Figure 5.1 *Climate Change Narrative in Searchlight Reports Ranging from Mitigation to Adaptation*



In Searchlight articles, climate change provides an explanatory framework to examine challenges faced by developing countries in areas such as livelihoods and finance, sociopolitical conditions, health, habitat and migrations, food security, and water, all of which are affected by climate change-related hazards, variability, and trends. Our conceptual framework enables us to differentiate 22 topics related to climate change and their frequency in the database. This framework is visualized as a distribution of colored balls with mitigation efforts (focused on reducing carbon emissions) on one end and human adaptation (focused on helping people adapt their lives to a changing climate) on the other. Each ball represents the frequency of mentions of each of the 22 topics (color coded) in the Searchlight database. Clearly, the distribution is tilted to the human adaptation side in this study. In contrast, if the study included countries in Western Europe, U.S. and Canada, the tilt would be towards the carbon/mitigation side. This could be further explored in a future paper using a global database.

In this study, a number of issues fall clearly towards the adaptation end such as conflict, sustainable livelihoods, migration, and fisheries while topics such as renewable energy, precipitation changes and pollution are anchored towards the mitigation side. In between are a host of issues such as biofuels, green technology, REDD, and transportation, and water.

Searchlight articles link many topics leading to compelling climate narratives. One narrative (right side towards adaptation) deals with interesting links between migration, economic drivers of change, and environmental change. Environmental change (precipitation changes or weather variability) impacts the hazardousness of a place directly and migration indirectly, in particular through economic drivers, by changing livelihoods (agriculture); it can also impact political drivers by creating conflicts over resources. Another climate narrative is the impact of climate on disease outbreaks such as the increasing incidence of malaria in Africa and South Asia. Still another narrative is the increasing slant towards renewable energy and green technology (on the left side, mitigation).

The Intergovernmental Panel on Climate Change (IPCC 2001) views adaptation to climate change as an adjustment in ecological, social, or economic systems in response to observed or expected changes in climatic stimuli and their effects in order to alleviate adverse impacts of change or take advantage of new opportunities. Adaptations occur in the context of demographic, cultural and economic change as well as transformations in information technologies, global governance, social conventions and the globalizing flows of capital and labor. Adaptations can range in scale from an individual household moving away from a flood plain or other high-risk area to groups of people moving to cities when their agricultural livelihood is threatened by the uncertainty of the climate.

5.2 URBANIZATION

For the first time in human history, the majority of the world's population lives in cities, increasingly in megacities of 10 million or more. In 1950, only 30 percent of the world's population was urban compared with the projection for 2030 of approximately 60 percent. There are now more than 300 global city regions around the world whose populations exceed one million, and the UN estimates that 828 million people currently live in slums of the developing world. These city regions are expanding rapidly and represent serious challenges to urban planners and policy makers in the 21st century.

Several Searchlight articles examine a suite of issues that might be expected when discussing large cities in developing countries, such as crime [67], slums [112, 116], and the social dynamics between actors including law enforcement and slum dwellers [106]. They also provide insights into more specific problems such as malnutrition, slums, and water [108, 131, 132], and novel strategies to address major issues, such as non-formal education in slums [266], housing [257], sanitation [283], sustainable transport [110, 253], and urban agriculture [251].

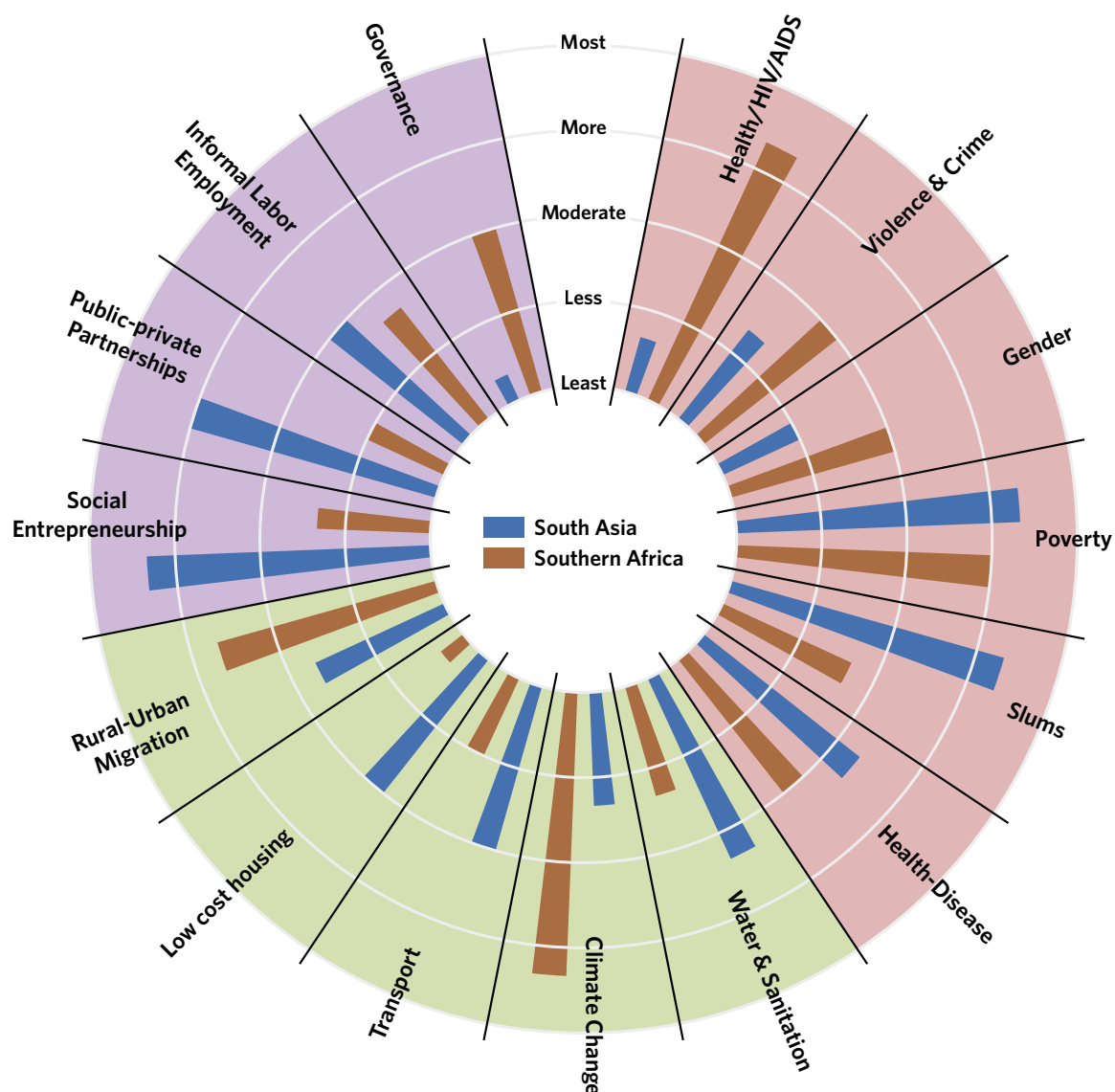
But the story that caught the attention of the Pardee Center team gives a glimpse of some emerging trends in urbanization that are common in broad terms but different in the local contexts. More data is available for South Asian and African urban concerns in the Searchlight newsletters, so we compare major urban areas in these two regions using three specific themes — *sustainability*, *social equity*, and *resilience*.

Sustainability: Urban sustainable development has become a challenging issue confronting many of the Searchlight partner countries. Sustainability encompasses environmental, material, ecological, social, legal, cultural, political, and psychological dimensions requiring a new approach involving the public as well as private agencies to collaborate and cooperate to bring about solutions.

Social Equity: The growing gap between the rich and the poor in access to finance, land, resources, and education is accelerating in urban areas. Such chronic festering problems are now being acknowledged and addressed in new ways.

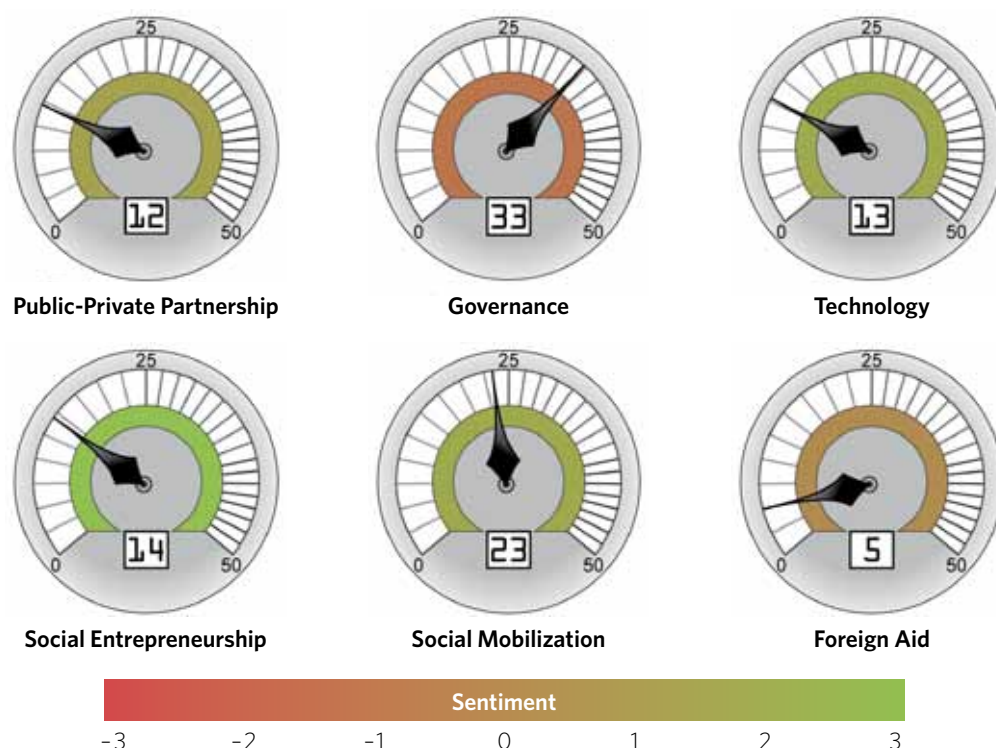
Resilience: Social resilience is the ability to cope with and adapt to environmental and social change mediated through appropriate institutions such as local governmental organizations, NGOs and entrepreneurs. This is helping many South Asian cities to address fundamental problems such as gender issues, access to education and healthcare, transportation, etc.

As Figure 5.2 (p. 23) indicates, there are clear areas of contrast in the salience of particular issues in South Asian versus South African cities. While poverty and health/disease concerns are prominent issues in urban areas on both continents, there is significant divergence in the salience of other issues — especially those related to sustainability and social equity — largely because urban areas in South Asia are at a more mature phase in their development than urban centers in South Africa. For example, issues related to well-established slums are prominent in articles from South Asian newsletters, while in Africa there is much discussion about the rapid increase in rural-to-urban migration.

Figure 5.2 A Comparison of Urbanization Trends in South Asian and South African Cities

5.3 SOCIAL RESILIENCY OR “MOTORS OF CHANGE”

In reviewing the newsletter articles, the Pardee Center team noticed a collective theme of self-confidence and self-reliance, describing various ways that developing countries are expecting to initiate change on their own to solve their major societal problems themselves. This display of “social resiliency” is noteworthy because it runs counter to the dominant discourse concerning development from the developed world’s perspective for the past several decades — that is, that the rich countries need to provide significant aid to developing countries to improve the lives of their people. The Searchlight newsletters highlight the efforts being made to mobilize people and resources to address issues locally or on a state or regional basis. There is little discussion of reliance on foreign aid or foreign direct investment as a means to solving problems.

Figure 5.3 Motors of Change: Searchlight Authors' Sentiment Index

What are the motors of change? The Searchlight synthesis found that there are four significant forces or “motors of change” that are driving toward social resiliency and improved lives and livelihoods in developing countries: social entrepreneurship, social mobilization, technology, and public-private partnerships. Figure 5.3 displays global sentiment concerning the motors of change where the total weight of the concept is displayed as a number and the color of the dial indicates the sentiment value (-3 to 3) giving a visual representation of change agents.

In Asia, social change via mobilization and entrepreneurship are viewed as major motors of change to society’s most pressing social problems. Whether it is about building public toilets or creating health insurance for maid servants, social entrepreneurship is seen as a rising force in dealing with chronic problems. Social mobilization, meanwhile, has led to the growth of microfinance and social institutions that are helping the urban dwellers from Mumbai to Cape Town. Technology has gone mainstream and is now in the hands of the ordinary citizen; its role in delivering education and healthcare as well as promoting democracy and more open society and governance are recognized across Searchlight countries. The fourth motor of change is the public-private partnership model that is seen to be more effective in combating many problems in urban areas such as building much-needed infrastructure. This partnership is seen to be more responsible and efficient than state-owned enterprises or operations.

We investigated what were the obvious missing drivers of change — foreign assistance and governance. In development literature, foreign assistance and foreign direct aid was considered the most important tool in building capacity and infrastructure. So is strong governance. Governance at all levels is considered as a key in bringing about change. However, bad governance can lead to myriad problems, including urban riots and crimes as discussed in some Searchlight articles on Africa. Both sets of factors were viewed in a negative way in the Searchlight reports as shown by the dashboard in Figure 5.3.

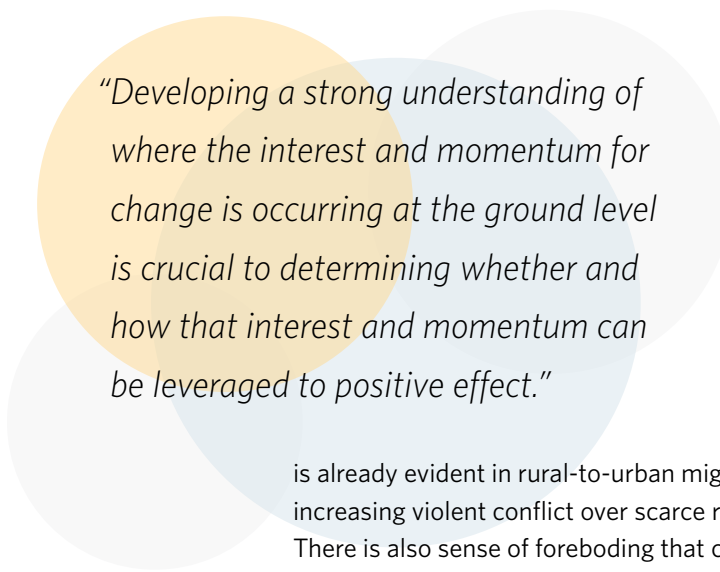
Section 6: Conclusions

Decisions we make today have implications for the future. Without reliable crystal balls, we need to find ways to weigh today's decisions — as best we can — toward improved outcomes for tomorrow.

The Searchlight newsletters (as the name suggests) shine a spotlight on significant development issues in their local and regional contexts, providing important and useful perspectives that can and should inform decisions about future directions. We found that through a detailed review, aggregation, and analysis of the newsletters we could (with acknowledged limitations) extrapolate trends that both provide insight into today's great challenges and suggest emerging issues of concern for the future. Indeed, knowledge of what is happening at local and regional scales is critical to obtaining a realistic and clearly focused view of "the big picture."

The methods of analysis used in this project would be particularly helpful in other contexts where decision-makers are working to envision potential futures and are looking for information that may help tilt the decisions and resource allocations toward positive outcomes. Developing a strong understanding of where the interest and momentum for change is occurring at the ground level is crucial to determining whether and how that interest and momentum can be leveraged to positive effect. Likewise, getting a keen sense of negative perceptions — what isn't working, hasn't worked or likely won't work — is equally important in determining which directions won't prove fruitful or perhaps need to be tweaked or even overhauled.

For this project, the Pardee Center team's synthesis and analysis shows that there is an overall concern with governance, climate change (environmental risk) and social developmental issues in the Searchlight regions. Governance seems to be a hot button issue, especially in Latin America, while gender and climate change have higher salience in Africa. Chinese investment in African infrastructure is currently viewed positively but that may change in the future. In Asia, social and development problems such as urban slums, education and health are salient.



"Developing a strong understanding of where the interest and momentum for change is occurring at the ground level is crucial to determining whether and how that interest and momentum can be leveraged to positive effect."

While there are clear negative sentiments in addressing regional issues, there is a surprising degree of optimism concerning the potential for social entrepreneurship and technology-based solutions to problems, especially in Asia. Technology seems to hold promise in governance, healthcare, education and empowering the masses to bring about change. Public-private partnerships are perceived in many cases as a desirable alternative to state-run programs.

Climate change is a reality in many of the Searchlight countries. The magnitude of the impact of climate change

is already evident in rural-to-urban migration, food insecurity given erratic weather patterns, increasing violent conflict over scarce resources, and more frequent coastal and other flooding. There is also sense of foreboding that climate change will be one of the leading causes underlying a plethora of problems ranging from civil wars and climate refugees to food deserts.

Given all of this, where should we put time and resources to leverage positive future outcomes? This analysis suggests that social entrepreneurship, social mobilization, public-private partnerships, and technology are “motors of change” that are gaining traction and can lead to improvements in lives and livelihoods in Africa, Asia and Latin America. While governance is an important factor, there was less optimism that it can be easily moved in a positive direction (although perhaps recent events in the Arab world may change the perception on that). Foreign assistance was conspicuous by its absence in discussions of methods for future improvement, while there was a noticeable emphasis on self-reliance and increased public-private partnerships.

In terms of important trends to watch based on our analysis of the newsletters, climate change — and efforts toward adaptation and the human impacts — are of great importance in the developing world. Likewise urbanization and how governments and civil society respond to the issues cropping up surrounding sustainability, social equity, and social resilience in burgeoning urban areas are determinants of the future. The responses today will affect the outcomes tomorrow.

We were aware from the beginning of the challenges associated with exercises such as this one that strive to combine qualitative and quantitative information and extract specific findings and recommendations. But we hope it helps generate discussion of how we perceive the future and how to uncover the knowledge we need to influence it in ways that will be beneficial now and in generations to come. ●

ACKNOWLEDGEMENTS

We sincerely acknowledge the valuable feedback from Evan Michelson and Claudia Juech at the Rockefeller Foundation. We wish to thank our students Sara Chung, Jackie Gushue and Lindsey Everitt for their reviews of the manuscripts and David Kealey for his rendering of visualizations. Finally, we wish to thank Cynthia Barakatt for her patience and unending support.

APPENDIX A

References to Searchlight Articles Newsletter Alias

CDD	Center for Democracy and Development — Africa
FORO	FORO Nacional Internacional — Latin America
INTELLECAP	Intellectap — South Asia
LKYSPP	Lee Kuan Yew School of Public Policy SE Asia
NISTPASS	NISTPASS — Asia
Noviscape	Noviscape — Asia
RAND	RAND Corporation USA
SANode	South Africa Node of the Millennium Project
SFG	Strategic Foresight Group — South Asia
SFG-ME	Strategic Foresight Group — Middle East
SID	Society for International Development — Africa

1	Technology and the Cost of Elections in West Africa	CDD_ Apr2010_1
2	Ghana and its Successful Three-Turn Elections	CDD_ Apr2010_2
3	Quite Frankly Ma'm Liberians Care — About You Keeping that Election Promise	CDD_ Apr2010_3
4	Challenges to Free and Fair Elections in Nigeria	CDD_ Apr2010_4
5	Constructing the Electoral Process in Côte d'Ivoire	CDD_ Apr2010_5
6	Election Observation in West Africa	CDD_ Apr2010_6
7	Concerning Food Security in Nigeria	CDD_ Dec2010_1
8	Côte d'Ivoire: Political Impasse and the Looming Chocolate Crisis	CDD_ Dec2010_2
9	Zimbabwean Farmers in Nigeria	CDD_ Dec2010_3
10	West African Agriculture and the "Gene Revolution"	CDD_ Dec2010_4
11	Inter-communal Tensions: Is Democracy Wishful Thinking for Côte d'Ivoire	CDD_ Jan2010_1
12	Sorcerers, Government, Politics	CDD_ Jan2010_2
13	Guinea and the Recurring Plague of Military Juntas	CDD_ Jan2010_3
14	Niger the Arrogance of Power	CDD_ Jan2010_4
15	The Absent President, Political Vacuum and Threats to Nigeria's Democracy	CDD_ Jan2010_5
16	Consolidating Personal Rule, Arbitrariness, and Indiscretion in Togo	CDD_ Jan2010_6
17	The Double Damage: Gender and Deforestation in West Africa	CDD_ July2010_1
18	Oil Exploration Endangers Nigeria's Niger Delta Wetlands	CDD_ July2010_2
19	West African Forests: An Overview	CDD_ July2010_3
20	Forest Depletion in Ghana Leads to the Loss of Medicinal Herbs	CDD_ July2010_4
21	ECOWAS Policy Framework and West African Forests	CDD_ July2010_5
22	Beyond Trees	CDD_ July2010_6
23	Assisting Homeless People in Ghana	CDD_ Mar2010_1
24	Destitution in the Niger Delta	CDD_ Mar2010_2
25	Street Children in Senegal	CDD_ Mar2010_3
26	Homelessness in Nigeria	CDD_ Mar2010_4
27	Almajiris "Street Children" and Sectarian Conflicts in Northern Nigeria	CDD_ Mar2010_5
28	Côte d'Ivoire: At the Crossroad of War or Consolidation of Peace	CDD_ Nov2010_1
29	Post-Electoral Violence in Guinea and Conflict Risk in West Africa	CDD_ Nov2010_2

30	Women Must Play a Part in Peacebuilding Initiatives	CDD_ Nov2010_3
31	Al-Qaeda, Islamic Fundamentalism, and Conflict in the Sahel	CDD_ Nov2010_4
32	The Casamance: Avoiding Future Conflicts in Sene-Gambia	CDD_ Nov2010_5
33	Dumping of Toxic Waste is Violation of Human Rights	CDD_ Oct2010_1
34	Pass Pending Bills Into Law — and Your Names are Written in Gold	CDD_ Oct2010_2
35	Towards Eliminating the Trafficking in Persons	CDD_ Oct2010_3
36	Violence in the Family	CDD_ Oct2010_4
37	It is Gross Violation of Rights to Stigmatize Children as Witches	CDD_ Oct2010_5
38	Reflections on ECOWAS Protocol on Free Movement: 30 Years After	CDD_ Sept2010_1
39	ECOWAS Free Movement Protocols and Local Integration of West Africa's Refugees	CDD_ Sept2010_2
40	How Border Officials Impede Freer Transportation of Goods and Persons	CDD_ Sept2010_3
41	Feminization of West African Migration	CDD_ Sept2010_4
42	Contents and the Momentum of Literacy Initiatives in Nigeria	CDD_Aug2010_1
43	Education Means Self-Actualization: Why the Girl Child Must Stay in School	CDD_Aug2010_2
44	Toward Attaining the Ideal Pupil-Teacher Ratio	CDD_Aug2010_3
45	Slow Steps to Change in the Levels of Literacy	CDD_Aug2010_4
46	Gender Equality, Culture, and Social Institutions in Burkina Faso	CDD_Feb2010_1
47	Gender, Peace-Building, and Security Sector Reform in Liberia	CDD_Feb2010_2
48	The Traumatized Female Victims of Sierra Leone's War Experience	CDD_Feb2010_3
49	Togo's National Strategies for Advancing the Interests of Women	CDD_Feb2010_4
50	Gender Based Discrimination in the Nigerian Security Sector	CDD_Feb2010_5
51	The "August Meeting" Concept and Community Development in Nigeria	CDD_Feb2010_6
52	Nigeria Vision on Key Opportunities for Safe Childbearing	CDD_June2010_1
53	Questioning the Quality of Côte d'Ivoire's Maternal Services	CDD_June2010_2
54	Monitoring Success in Benin's Maternal Health Care Sector	CDD_June2010_3
55	Strengthening Pro-Poor Healthcare Initiatives for Pregnant Women in Rural Guinea	CDD_June2010_4
56	Risks of Childbirth in Sierra Leone and Liberia	CDD_June2010_5
57	Making Water Available to Rural People	CDD_May2010_1
58	Farmer Pastoralist-Relations in West Africa: Conflict and Collaboration	CDD_May2010_2
59	Burkina Faso: Synergies in Urban and Rural Livelihoods	CDD_May2010_3
60	Concerning Improvements in Rural Diets and Nutrition	CDD_May2010_4
61	The Changing Dynamics of Rural Life	CDD_May2010_5
62	CELAC: A Real Opportunity for Latin American Integration?	FORO_Apr2010_1
63	South-South Cooperation and Regional Integration in South America	FORO_Apr2010_2
64	Towards South-South Cooperation in Environmental Negotiations	FORO_Apr2010_3
65	Miscellany	FORO_Apr2010_4
66	Growing Challenges for Pension Systems	FORO_Aug2010_1
67	Crime in Urban Areas: A Heavy Burden for Regional Cities	FORO_Aug2010_2
68	Decentralized Cooperation (DC) in the Development Cooperation Landscape	FORO_Aug2010_3
69	Miscellany	FORO_Aug2010_4
70	The Region is Improving and Taking Advantage of Economic Growth is that Enough?	FORO_Dec2010_1
71	Environmental Trends and Challenges for South America in 2010	FORO_Dec2010_2
72	Beyond Left and Right: Challenges for Social Inclusion in the Region's Democracies	FORO_Dec2010_3

73	Miscellany	FORO_Dec2010_4
74	South American Governments and Freedom of Expression: Defenders or Main Offenders?	FORO_Feb2010_1
75	Regional Trends and Perspectives in Biofuels	FORO_Feb2010_2
76	Haiti's Relief Effort: Lessons for the Region	FORO_Feb2010_3
77	Miscellany	FORO_Feb2010_4
78	Democracy in the Andes: Evolution or Authoritarianism Revisited?	FORO_Jan2010_1_all
79	Brazil: New Development Model or Rewards for Consistency	FORO_Jan2010_2_all
80	Between a Rock and Hard Place: Natural Resource and Environmental Conflicts	FORO_Jan2010_3
81	Miscellany	FORO_Jan2010_4
82	Organic Products and Development	FORO_July2010_1
83	Cultural Industries: Opportunities and Challenges for Development	FORO_July2010_2
84	The Regional Challenge of Access to Digital Terrestrial Television	FORO_July2010_3
85	Miscellany	FORO_July2010_4
86	The Informal Economy: Is Economic Growth Making it Smaller?	FORO_June2010_1
87	Modern Slavery in Latin America: Present but Invisible	FORO_June2010_2
88	Child Labor: To Eradicate or Dignify?	FORO_June2010_3
89	Miscellany	FORO_June2010_4
90	Conditional Cash Transfer Programs (CCTPs) and the Recent Regional Increase in Poverty	FORO_Mar2010_1
91	Production Trends and Challenges for the Future of Hydroelectric Power	FORO_Mar2010_2
92	Trade Trends after the Economic Crises: Structural Change?	FORO_Mar2010_3
93	Coping with Organized Crime: A Regional Approach	FORO_May2010_1
94	High-level Corruption: A Persistent Stumbling Block for Democracy	FORO_May2010_2
95	GMO in South America: Between Food Security and Economic Power	FORO_May2010_3
96	Miscellany	FORO_May2010_4
97	Better Financial Instruments to Support Science and Technology This Time?	FORO_Nov2010_1
98	Decentralization in the Andes: Similar Commitments, Varying Support	FORO_Nov2010_2
99	Philanthropic Trends in Latin America: Locals Taking More Responsibility	FORO_Nov2010_3
100	Miscellany	FORO_Nov2010_4
101	Comprehensiveness of MDGs and Sustainability of Poverty Reduction in Latin America	FORO_Oct 2010_1
102	Land Property and Rural Poverty : The Debate Reemerges	FORO_Oct 2010_2
103	Social Protest and State Deficiency in the Implementation of the Law of Consultation With Indigenous Peoples, Convention 169	FORO_Oct 2010_3
104	Miscellany	FORO_Oct 2010_4
105	Development Initiative — Rainwater Harvesting	Intellecapt_Apr2010_1
106	Research Perspective — Solid Waste Management	Intellecapt_Apr2010_2
107	Event Wrap-up: Water Credit Forum, March 26, 2010, Chennai	Intellecapt_Apr2010_3
108	Enterprise to Watch: MaidInIndia	Intellecapt_Apr2010_4
109	Regional News	Intellecapt_Apr2010_5
110	Fair Choice? Unemployment or Poverty Wages in Bangladesh Garment Industry	Intellecapt_Aug2010.1
111	The Nexus: Mastaans, Politicians and Police — Manipulation of the Poor in Dhaka	Intellecapt_Aug2010.2
112	Monsoon Related Infections Rise in India	Intellecapt_Aug2010.3
113	Research Perspective: Kanpur Report	Intellecapt_Aug2010.4
114	Development Initiative — Slum Sanitation Project in India	Intellecapt_Dec2009_1
115	Research Perspective — Enhancing Water Services Through Performance Agreements	Intellecapt_Dec2009_2

116	Water and Sanitation - Statistics	Intellectap_Dec2009_3
117	Regional News	Intellectap_Dec2009_4
118	Feature: Public-Private Partnerships in Water Supply	Intellectap_Dec2010_1
119	Development Initiative: Sustainable Urban Transport Project	Intellectap_Dec2010_2
120	Event Recap: Discussing Innovations	Intellectap_Dec2010_3
121	Reducing Urban Slums	Intellectap_Dec2010_4
122	News Deep Dive: Challenges of an Aging Population	Intellectap_Dec2010_5
123	Development Initiative - Affordable Urban Housing	Intellectap_Feb2010_1
124	Research Perspective - Mobility for the Urban Poor	Intellectap_Feb2010_2
125	City Focus: Bangalore	Intellectap_Feb2010_3
126	Regional News	Intellectap_Feb2010_4
127	Development Initiative: Channeling Insurance to the Poor Through Multi-National Company (MNC) Employees	Intellectap_Jan2010_1
128	Research Perspective: Public-Private Partnership for Healthcare Provision to the Poor	Intellectap_Jan2010_2
129	Event Summary: Slum Redevelopment in Mumbai	Intellectap_Jan2010_3
130	Regional News	Intellectap_Jan2010_4
131	Development Initiative: Will India Digitize Education in the Near Future	Intellectap_July2010.1
132	When India Strikes: Political Manipulations of the Poor	Intellectap_July2010.2
133	Research Perspective: Corruption in Pakistan	Intellectap_July2010.3
134	Research Perspective: Kanpur Report	Intellectap_July2010.4
135	Development Initiative--Component Sharing Model	Intellectap_June2010_1
136	Policy Spotlight: SME Development in Pakistan	Intellectap_June2010_2
137	Gender Spotlight: More Women Enter Pakistan's Workforce?	Intellectap_June2010_3
138	Regional News	Intellectap_June2010_4
139	Development Initiative — Citizen Participation in Governance	Intellectap_Mar2010_1
140	Research Perspective — Climate Change and Rural Urban Migration	Intellectap_Mar2010_2
141	Regional News	Intellectap_Mar2010_3
142	Development Initiative — Social Enterprise and Activity in India	Intellectap_May2010.1
143	India-In Focus: Commonwealth Games, Delhi	Intellectap_May2010.2
144	Policy Snapshot: JNNURM Progress	Intellectap_May2010.3
145	Research Perspective: Access to Energy, Climate Change, and the Urban Poor	Intellectap_Oct2009_1
146	Development Initiative: Affordable Private Schools	Intellectap_Oct2009_2
147	Conference Wrap Up	Intellectap_Oct2009_3
148	Regional News	Intellectap_Oct2009_4
149	Development Initiative: Business Incubation	Intellectap_Sept2010.1
150	Leapfrogging Transport Infrastructure	Intellectap_Sept2010.2
151	Studies in Urban Risk Management	Intellectap_Sept2010.3
152	International Workshop on Sustainable and Climate Resilient Urban Development	Intellectap_Sept2010.4
153	Bridging the Asian Digital Divide	LKYSPP_Dec2010_1
154	Empowering the Poor Against Climate Change	LKYSPP_Dec2010_2
155	ICT Leads to Better Public Health?	LKYSPP_Dec2010_3
156	Emerging Trends, Imminent Threats, and Ongoing Challenges	LKYSPP_Dec2010_4
157	Vulnerabilities in the Palm Oil Trade	LKYSPP_June2010.1
158	Vulnerabilities in the Palm Oil Trade	LKYSPP_June2010.2
159	Development or Destruction?	LKYSPP_June2010.3

160	Medical Tourism	LKYSPP_Sept2010.1
161	The Power of Pico-Hydro	LKYSPP_Sept2010.2
162	Chasing After FDI Dollars	LKYSPP_Sept2010.3
163	China Green Power Revolution	NISTPASS_Aug2010_1
164	Indonesia's Green Investment Fund	NISTPASS_Aug2010_2
165	East Asia's Sustainable Energy Future	NISTPASS_Aug2010_3
166	Qatar's Biofuel Development	NISTPASS_Aug2010_4
167	Climate Change and Child Health Links	NISTPASS_Aug2010_5
168	Asian Ozone Raising Levels of Smog in US	NISTPASS_Aug2010_6
169	Japan, South Korea, China to Further Environmental Cooperation	NISTPASS_Aug2010_7
170	Australian Laws to Promote Building Efficiency	NISTPASS_Aug2010_8
171	Distance Education in Asia Pacific	NISTPASS_Sept2010.1
172	Technology Trends in the Education Sector	NISTPASS_Sept2010.2
173	Improving Vocational Training in Vietnam	NISTPASS_Sept2010.3
174	Strengthening Inclusive Education	NISTPASS_Sept2010.4
175	Vietnam: From Ngo Bao Chau Phenomenon	NISTPASS_Sept2010.5
176	International Education in India: Emerging Trends and Strategies	NISTPASS_Sept2010.6
177	Education in US International Relations	NISTPASS_Sept2010.7
178	In Brief: Trends to Watch	NISTPASS_Sept2010.8
179	Natural Resource Conflicts in Southeast Asia	Noviscape_July2010_1
180	Where Have All the Fish Gone?	Noviscape_July2010_2
181	A Very Long Journey of Alternative Energy	Noviscape_July2010_3
182	Boost, Block, and Ban: The Next Decade of Digital Politics in Southeast Asia	Noviscape_Sept2010.1
183	Digital Democracy: A New Era of Digital Connectivity	Noviscape_Sept2010.2
184	Digital Picket Line: Future of Political Technologies	Noviscape_Sept2010.3
185	Interview With Kan Yuanyong, Founder of Siam Intelligence Unit (SIU)	Noviscape_Sept2010.4
186	Trend Tools Bibliometrics: A Tool for Foresight	Noviscape_Sept2010.5
187	Searchlight: Implications of Social Media in the United States	RAND_Aug2010
188	The Evolving Urban Landscape	RAND_Feb2010
189	Horizon Scan: The U.S. — Mexico Border	RAND_Mar2010
190	Searchlight: Emerging Political Trends in the United States	RAND_Oct2010
191	Scan Section — Social Issues	SA Node_Apr2010.1
192	Scan Section — Economic Issues	SA Node_Apr2010.2
193	Scan Section — Environmental Issues	SA Node_Apr2010.3
194	Scan Section — Social Issues	SA Node_Apr2010.4
195	Scan Section — Social Issues	SA Node_Apr2010.5
196	Scan Section — Social Issues	SA Node_Aug2010.1
197	Scan Section — Economic Issues	SA Node_Aug2010.2
198	Scan Section — Environmental Issues	SA Node_Aug2010.3
199	Scan Section — Social Issues	SA Node_Aug2010.4
200	Scan Section — Social Issues	SA Node_Aug2010.5
201	Scan Section — Science, Technology and Innovation Issues	SA Node_Aug2010.6
202	Scan Section — Economic Issues	SA Node_Dec2009.2
203	Scan Section — Political Issues	SA Node_Dec2009.3

204	Scan Section — Environmental Issues	SA Node_Dec2009.4
205	Scan Section — Social Issues	SA Node_Dec2009.5
206	Scan Section — Technology Issues	SA Node_Dec2009.6
207	Scan Section — Philanthropy Issues	SA Node_Feb2010.1
208	Scan Section — Economic Issues	SA Node_Feb2010.2
209	Scan Section — Economic Issues	SA Node_Feb2010.3
210	Scan Section — Environmental Issues	SA Node_Feb2010.4
211	Scan Section — Social Issues	SA Node_Feb2010.5
212	Weak Signal Section	SA Node_Feb2010.6
213	Scan Section — Economic Issues	SA Node_Jan2010.1
214	Scan Section — Political Issues	SA Node_Jan2010.2
215	Scan Section — Environmental Issues	SA Node_Jan2010.3
216	Scan Section — Social Issues	SA Node_Jan2010.4
217	Scan Section — Technology Issues	SA Node_Jan2010.5
218	Country in Focus: Lesotho	SA Node_Jan2010.6
219	Scan Section: Poverty, Development, and Donor Issues	SA Node_Jul2010.1
220	Scan Section — Economic issues	SA Node_Jul2010.2
221	Scan Section — Environmental Issues	SA Node_Jul2010.3
222	Scan Section — Environmental Issues	SA Node_Jul2010.4
223	Scan Section — Social Issues	SA Node_Jul2010.5
224	Scan Section — Technology Issues	SA Node_Jul2010.6
225	Scan Section — Social Issues	SA Node_Mar2010.1
226	Scan Section — Economic Issues	SA Node_Mar2010.2
227	Scan Section — Political Issues	SA Node_Mar2010.3
228	Scan Section — Political Issues	SA Node_Mar2010.4
229	Scan Section — Political Issues	SA Node_Mar2010.5
230	Scan Section — Technology Issues	SA Node_Mar2010.6
231	Scan Section — Poverty Issues	SA Node_Nov2009.1
232	Scan Section — Poverty, Development and Donor Issues	SA Node_Sept 2010.1
233	Scan Section — Economic Issues	SA Node_Sept 2010.2
234	Scan Section — Social Issues and Political Issues	SA Node_Sept 2010.3
235	Scan Section — Science, Technology and Innovation Issues	SA Node_Sept 2010.4
236	Weak Signals Section	SA Node_Sept 2010.5
237	Scan Section — Economic Issues	SA Node_Sept2009.1
238	Scan Section — Environmental Issues	SA Node_Sept2009.2
239	Scan Section — Social Issues	SA Node_Sept2009.3
240	Scan Section — Social Issues	SA Node_Sept2009.4
241	Weak Signal/ Wild Card Section	SA Node_Sept2009.5
242	Scan Section	SANode_June2010.1
243	Scan Section — Economic Issues	SANode_June2010.2
244	Scan Section — Political Issues	SANode_June2010.3
245	Scan Section — Environmental Issues	SANode_June2010.4
246	Scan Section — Social Issues	SANode_June2010.5
247	Scan Section — Technology Issues	SANode_June2010.6

248	Scan Section — Technology Issues	SANode_May2010.1
249	Scan Section — Economic Issues	SANode_May2010.2
250	Scan Section — Economic Issues	SANode_May2010.3
251	Scan Section - Economic Issues	SANode_May2010.4
252	Scan Section — Social Issues	SANode_May2010.5
253	Scan Section - Social Issues	SANode_May2010.6
254	Searching for a More Perfect Union? Scenarios for Kenya's Constitutional Reform	SID 2010
255	Royal Foundations: Development Initiatives	SFG-ME_August2010_1
256	Rising Electricity Shortage in Syria	SFG-ME_August2010_2
257	Child Poverty in Egypt and Yemen	SFG-ME_August2010_3
258	Decoding the Arab Genome — Medical Breakthroughs in the Middle East	SFG-ME_August2010_4
259	ICT Empowering the Berber Community in Morocco	SFG-ME_Dec2010_1
260	A Sea of Sand in Syria: The Threat of Desertification	SFG-ME_Dec2010_2
261	Innovation in Israel	SFG-ME_Dec2010_3
262	Sustainable Tourism and Local Development	SFG-ME_Dec2010_4
263	Takaful: The Rise of Islamic Insurance	SFG-ME_July2010_1
264	Solar Power — Energizing the Middle East	SFG-ME_July2010_2
265	Farmers in Yemen Tackle the Menace of Qat	SFG-ME_July2010_3
266	Science and Technology Parks Building a Knowledge Economy	SFG-ME_July2010_4
267	Conditional Cash Transfer Scheme Reaching the Poorest in Yemen and Egypt	SFG-ME_Nov2010_1
268	The Rise of Affordable Homes	SFG-ME_Nov2010_2
269	A Future for Recycling in the West Bank	SFG-ME_Nov2010_3
270	Urban Agriculture — Ensuring Income and Food Security in a Rapidly Urbanizing Middle East	SFG-ME_Nov2010_4
271	Demographic Trends: Incorporating the Old and the New	SFG-ME_Sept2010_1
272	Urban Transport System: Full Speed Ahead	SFG-ME_Sept2010_2
273	One Man's Wasteland is Another Man's Oasis: Landfills Converted into Nature Parks	SFG-ME_Sept2010_3
274	Man-Made Islands: Devastating Ecosystems	SFG-ME_Sept2010_4
275	Urban Malnutrition	SFG_Aug2010_1
276	Low-Cost Urban Housing	SFG_Aug2010_2
277	Rural Landlessness	SFG_Aug2010_3
278	Urban Agriculture	SFG_Aug2010_4
279	The Deflating Youth Bulge	SFG_Aug2010_5
280	Trash Pickers	SFG_Aug2010_6
281	Illegal Logging	SFG_Aug2010_7
282	Ethnic Minorities	SFG_Aug2010_8
283	Aging Population	SFG_Aug2010_9
284	India	SFG_July2010.1
285	Non-Formal Education in Urban Slums	SFG_July2010.2
286	Bangladesh Land Degradation	SFG_July2010.3
287	Indonesia	SFG_July2010.4
288	Indonesia: Child Malnutrition	SFG_July2010.5
289	Indonesia: Water Issues in Jakarta	SFG_July2010.6
290	Vietnam: Illegal Dredging	SFG_July2010.7
291	Thailand: Death of a Farmer	SFG_July2010.8

292	Thailand: Bangkok — Sinking Capital	SFG_July2010.9
293	India-Low Quality of Education in Tamil Nadu	SFG_June2010.1
294	India-Impending Food Insecurity in Maharashtra	SFG_June2010.2
295	India-Land Redistribution in West Bengal	SFG_June2010.3
296	Bangladesh — Microcredits	SFG_June2010.4
297	Bangladesh — Community Radio	SFG_June2010.5
298	Indonesia — Smoker's Dilemma	SFG_June2010.6
299	Vietnam — The Mekong Delta's Tryst with Climate Change	SFG_June2010.8
300	Thailand: Doctors Buying Out Compulsory Public Service	SFG_June2010.9
301	Urban Sanitation	SFG_Oct2010_1
302	Deteriorating Land Quality in Madhya Pradesh	SFG_Oct2010_2
303	The State of Tribal Groups	SFG_Oct2010_3
304	Solar Powered Boat Schools	SFG_Oct2010_4
305	Universal Health Insurance	SFG_Oct2010_5
306	Micro Hydropower Projects	SFG_Oct2010_6
307	Trends in Urban and Rural Poverty	SFG_Oct2010_7
308	Shrimp Farming	SFG_Oct2010_8
309	Understanding the 'Northern' Dilemma	SFG_Oct2010_9
310	Education of Girls in Bihar	SFG_Sept2010_1
311	Mumbai's Public Hospitals	SFG_Sept2010_2
312	Demographic Transition	SFG_Sept2010_3
313	Future of Garbage Recycling	SFG_Sept2010_4
314	Dearth of Doctors	SFG_Sept2010_5
315	Sanitation Programme for the Poor	SFG_Sept2010_6
316	CCT: Improving the Health of Women and Children	SFG_Sept2010_7
317	Crafty Business	SFG_Sept2010_8
318	Foundations	SFG_Sept2010_9
319	The Election Train (2010-2012)	SID_Apr2010_1
320	The Somali Surprise: An Elusive Peace?	SID_Aug2010_1
321	Baseline Data and Analysis on Poverty, Migration and ICT in the Great Horn of East Africa	SID_Jan2010_1
322	The Greater Horn Online: Silicon Valley Rising?	SID_May2010_1
323	Sudan	SID_Aug2010
324	Interview With Ambassador Juma Volter Mwapachu, the Secretary-General of the East African Community	SID_Feb2010_1
325	Regional Integration Tracker and Economic Outlook by the East African	SID_Feb2010_2
326	HIV/AIDS and Condoms — Shared Challenges, Different Approaches	SID_Feb2010_3
327	The R to the Forthcoming Extra-Ordinary African Community Summit on Food Security and Climate Change	SID_Feb2010_4
328	Jobs in the Greater Horn	SID_July2010_1
329	Urbanization in East Africa -1	SID_June2010_2
330	Shoe-Shine Boundaries, Post-card Cities, and the Villagization of the City	SID_June2010_3
331	The Feel and Flavour of Urban Life in East Africa	SID_June2010_4
332	Introducing Juba, South Sudan's Largest City	SID_June2010_5
333	Feeding the Greater Horn of Eastern Africa	SID_Mar2010_1

APPENDIX B

Categorization and Sentiment Tracking Methodology

Relative weight of each concept is marked for each article. Note the normalized weights (shown in gray) of these 10 concepts that are calculated automatically by the program.

The lower panel of Figure B.1 lists how each of these can be scored in terms of the four major category concepts shown in the upper panel of Figure B.1. This scoring enables us to visualize a snapshot of the primary and secondary concepts synthesis across all articles.

Figure B.1 The Scoring Sheet Showing Primary and Secondary Concepts

List Top 10 Concept Categories and Their Relative Weights	Number	Broader Concept Category	Relative Weight	Normalized Weight
	1	Governance	0.90	1.29
	2	Society	0.50	0.71
	3	Human settlements	0.50	0.71
	4		0.00	0.00
	5		0.00	0.00
	6		0.00	0.00
	7		0.00	0.00
			0.70	

	Broadest Categories			
	economy	environment	social	enabling
Governance	<input checked="" type="checkbox"/> TRUE	<input type="checkbox"/> FALSE	<input checked="" type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
Society	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input checked="" type="checkbox"/> TRUE	<input type="checkbox"/> FALSE
Human settlements	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE
	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE
	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE
	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE
	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE	<input type="checkbox"/> FALSE

Figure B.2 shows how specific topics in the article were scored by noting their trend and projection into the future. Both trend and projection are specifically scored using the a four point rating scheme that characterizes if the trend or projection is *moving up*, *down*, *same* or *remains unchanged*.

Figure B.2 Trend, Projection and Author Sentiment Scoring

Number	Specific Topic	Trend	Projection	Author Sentiment	Weight	Normalized Weight
1	Urbanization	UP	UP	-3	0.30	0.35
2	Infrastructure	UP	UP	1	0.20	0.24
3	civil war	UP	UP	-3	0.25	0.29
4	population growth	UP	UP	-3	0.20	0.24
5	Chinese construction	UP	UP	1	0.10	0.12
6	Booming growth	UP	UP	3	0.30	0.35
7		SAME	UP		0.10	0.12
8		SAME	UP		0.00	0.00
9			UP		0.00	0.00
10					0.00	0.00
					0.85	

In addition, the SearchLight author's sentiment on each topic was recorded using a seven point scaling ranging between -3 (very negative) and 3 (very positive) enabling us to track sentiments across regions and across topics.

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Sucharita Gopal is Professor of Geography and Environment at Boston University as well as a Research Professor at several centers including the Centers for Remote Sensing, Center for Environment and Energy Systems, the BU Marine Program (BUMP), and a Faculty Fellow of the Pardee Center for the Study of the Longer-Range Future. She teaches and conducts research in geographical information systems (GIS), spatial analysis and modeling, data mining and information visualization, and remote sensing for environmental and public health applications. Her recent research includes the development of a marine integrated decision analysis system (MIDAS) for Massachusetts, malaria risk mapping in Ethiopia, and mapping health service delivery in Zambia.

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