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Development Intervention Systems Engineering

JAMES MASON, Ph.D., Stevens Institute of Technology
School of Systems and Enterprises

Introduction

At the 2014 Cornell Institute for African Development Spring Symposium, Steven Klingebiel and Heiner Janus of the German Development Agency presented their paper, “Results-Based Aid: Potential and Limits of an Innovative Modality in Development Cooperation” (Klingebiel and Janus 2014). To the extent that examining the intersection of development intervention and aid modalities remains critical to African development, this is an important dialog. In response to Klingebiel and Janus’ paper, the author of this article offers Development Intervention Systems Engineering (DISE) as an alternative to the Results-Based Aid (RBA) approach. We will elaborate a characterization of DISE; contrast and compare it with RBA; and illustrate DISE’s affinity with the principles of the Busan Partnership for Effective Development Cooperation.* Finally, we make recommendations for a net-

*An agreement negotiated and endorsed by over 160 countries and 50 NGOs during the Fourth High-Level Forum on Aid Effectiveness in Busan, Korea in November 2011.

work of regional Systems Engineering centers of excellence as a beneficial alternative to the Results-Based Aid paradigm.

Background: What is Results-Based Aid?

Over the course of the past ten years, Results-Based Aid (RBA) has emerged in the development intervention discourse as a stratagem for incentivizing improved performance in the execution of aid-funded development projects. In their 2014 paper, Klingebiel and Janus state, “The main characteristic of Results-Based Aid is the link between aid intervention and strong incentives to encourage results.” They further characterize RBA as “a contract between the donor and partner country, which stipulates that for every incremental success a set amount (‘reward’) will be paid.” They note that “the key feature of these approaches is that payments are only made once a predefined result has been achieved.”

Figure 1 below, provided by Klingebiel and Janus, characterizes the Results-Based Aid ‘impact chain.’ As indicated in the figure, under RBA disbursement of funds occurs only after it has been independently verified that contracted ‘Outputs’ and ‘Outcomes’ have been achieved. Under this paradigm, funding is not provided to support the acquisition of inputs or the execution of activities required to achieve outputs and outcomes. This is the essence of the Results-Based Aid paradigm as characterized by Klingebiel and Janus.

Why is there a Need for Results-Based Aid?

Klingebiel and Janus characterize the current state of Aid funding as “focused mainly on inputs or processes and only in some cases on outputs.” For example, “input-oriented intervention consists of funding new primary school buildings or establishing a specific budget target as a minimum share of total national budget.” Without explicitly saying so, the underlying premise would appear to be that building new schools does not guarantee that qualified teachers will teach in them. Neither does a budget allocation guarantee the number of students that will attend or that an adequate supply of textbooks will be available. While budgets, schools, and teachers—as interim products and processes—may be necessary, the actual development goal might be a percentage of the population completing a twelfth grade education. Increased funding for books, teachers, or facilities does not assure that these elements will come together and result in a significant increase in the size of the population reaching this milestone. By taking a hands-off position with regard to ‘inputs’ and ‘activities’—which are left entirely to the aid recipient—RBA’s underlying logic would appear to be that withholding a project’s funding until it delivers outcomes should increase, or at least encourage, the likelihood of

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Figure 1. Results-Based Aid: Impact Chain (Klingebiel and Janus 2014)
success. In their presentation, the authors characterized the pending payout of pledged funds, as depicted in Figure 1, as “strong incentive to encourage results.”

Given that RBA is fundamentally framed as a tool for incentivizing superior performance, it is surprising that Klingebiel and Janus offer no evidence that sub-optimal motivation or misaligned incentives are the cause of sub-optimal performance. In fact, a survey of RBA research (Pearson et al. 2010), as well as the general tenets of agency theory (Jensen and Meckling 1976; Nyberg et al. 2010), clearly highlight the fact that agent behavior is impacted by an array of intrinsic and extrinsic motivators—and must be considered in crafting a blend of incentives tailored to the network of stakeholders with operational responsibility or an ability to influence the outcomes of an initiative. If sub-optimal execution is assumed to be related to misaligned agent incentives, clearly payment on delivery pales in contrast to the multi-level nuanced incentive schemes used to mitigate agency issues with corporate executives—and used by corporate executives to mitigate agency issues within their organizations. From an incentives perspective, RBA would seem to reduce the networks of stakeholders and the myriad activities needed to produce a national cohort of high-school graduates to a single monolithic black box—waiting for a lump sum payout.

What specific problem is RBA trying to solve? This is an important question that should be answered without ambiguity. Klingebiel and Janus do not offer a concrete and traceable ‘cause-effect/effect-mitigation’ relationship linking specific ‘operational deficiencies’ with the causal drivers of those deficiencies or with Results-Based Aid as an appropriate tool for mitigating drivers of deficiencies. The authors do quite the opposite. In highlighting the field of contradictory opinions, they seem rather to reinforce a view that the general body of empirical research regarding any type of aid-based development is inconclusive. First, they cite Easterly et al. (2003) and Rajan & Subramanian (2007) in support of the contention that definitive evidence for or against a direct relationship between foreign aid and economic development has yet to be produced. Next they cite Fielding et al. (2006) and Kenny (2011) in asserting that “substantial proof exists” linking aid to “increased human welfare.” The authors then subtly associate their domain change (from ‘economic development’ to ‘increased human welfare’) with the ability to more rigorously trace and measure the impact of specific aid initiatives using ‘well-designed project interventions’ of a smaller scope.

The authors characterize RBA as “a promising approach for implementing post-2015 development goals, where the link between aid intervention and development results needs to be documented.” The post-2015 development goals are mentioned five times within the article, and the issue of measurement—or the attribution of outcomes to funding sources—is emphasized. Clearly, this issue of measurement is central to the discourse advocating RBA (Pearson et al. 2010).

**Potential and Limits**

It is only fair to note that the authors do not offer RBA as a panacea. Although they appear to be advocating for the deployment of some appropriate variant of RBA, their article is framed as an exploration of its potential and limits. The authors note that there is a limited body of experience in implementing results-based approaches. They also acknowledge a limited understanding of RBA’s conceptual underpinnings and provide a list of risks associated with its ability to positively influence aid effectiveness. Notable among these is the potential for unintentionally incentivizing the focused pursuit of contracted metrics to the exclusion of other important issues not associated with a cash payout. Citing de Renzio and Woods (2008), the authors warn that “it is disputed...whether results-based aid creates additional challenges or not.”

The issues raised by de Renzio and Woods (listed below) highlight some of the pitfalls associated with a singular focus on end-of-the-process metrics in an all-or-nothing paradigm lacking in conditional nuance. For example:

- “Focusing on completion rates for primary education may mean that the quality of education suffers, or that scarce resources may be diverted from other priority areas.
- Better performing countries will receive more aid, but this still leaves open the issue of what to do with non-performing countries where lots of poor people, who might be in dire need of additional resources, live.
- External economic shocks and natural disasters are classic examples of factors that fall well beyond government control, but that might affect primary schooling completion rates, and therefore aid allocations according to the cash-on-delivery formula.”

These risks are particularly acute for nations where funding for acquisition of inputs and execution of project activities is vital. Although dispersing funds to a project that has been successfully completed unambiguously establishes traceability between those funds and the results of that project, the practice does little to enhance ability to assure the project’s successful execution.

**Alternative Results-Based Paradigms**

Much of the current focus on results-based paradigms is a response to the principles of the Busan Partnership Agreement (Fourth High-level Forum on Aid Effectiveness 2011). The Busan Partnership document specifies a set of common principles for all development actors who are considered pivotal in making development cooperation effective (see Table 1 following).

Acknowledging the importance of the growing consensus that is developing around these principles, Klingebiel and Janus note that “the debates on aid effectiveness—as presented in events in Paris, Accra and Busan—
have a set of standards and principles in order to make aid more results-oriented.” While some of RBA’s tenets are compatible with these standards, the principles of the Busan Partnership Agreement clearly extend well beyond a results orientation. It is open to question whether RBA’s ‘hands-off inputs and activities’ stance is entirely compatible with Busan Principles 3 (partnership for development) and 4 (transparency and shared responsibility).

### Principles of the Busan Partnership

1. Ownership of development priorities by developing counties: Countries should define the development model that they want to implement.
2. A focus on results: Having a sustainable impact should be the driving force behind investments and efforts in development policy-making.
3. Partnerships for development: Development depends on the participation of all actors, and recognizes the diversity and complementarity of their functions.
4. Transparency and shared responsibility: Development cooperation must be transparent and accountable to all citizens.

There are alternative development intervention paradigms, such as ‘Managing for Development Results’ (MfDR), that share the principles espoused by RBA. MfDR is defined as a “shift [in] the focus from inputs (how much money will I get, how much money can I spend?), to measurable results (what can I achieve with the money?) at all phases of the development process” (OECD-DAC 2008).

Table 1: The principles of the Busan Partnership for Effective Development Cooperation

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The MfDR website (Managing for Development Results 2007) describes MfDR as “a management strategy that focuses on using performance information to improve decision-making.” Its principles and components are consistent with the principles of the Busan Partnership agreement and offer a more adaptive approach than RBA. One aspect of MfDR that is particularly appealing is that learning is embedded in its operational approach. The principles of monitoring, evaluating, reporting, and feeding performance information into future decision-making implies a systematic attempt to harvest and apply lessons learned, thereby increasing the resident capacity for executing development interventions. Increasing resident capacity is itself the definition of development. Principle 4 (managing for, not by, results) would also seem to be a caution against the pitfalls of a singular focus on achieving an end-game metric as opposed to a more holistic view of the overall intervention management process.

### Systems Engineering for Development Intervention

This article argues that the Systems Engineering paradigm is one of the most effective management paradigms available for addressing the complexity and requirements of the current state of International Development Cooperation (see Table 3: Systems Engineering Definitions). It asserts that Systems Engineering provides

- A robust suite of effective tools, practices, and perspectives focused on planning, executing, measuring, monitoring, and assuring outcomes (SEBoK 2014, 2015; International Council on Systems Engineering 2011);

—Continued on page 12

### Managing for Development Results

<table>
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<tr>
<th>The Principles</th>
<th>Five Core Components or Stages</th>
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<tr>
<td>1. Focusing the dialogue on results at all phases of the development process;</td>
<td>1. Setting goals and agreeing on targets and strategies;</td>
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<tr>
<td>2. Aligning programming, monitoring and evaluation with results;</td>
<td>2. Allocating the available resources to activities that will contribute to the achievement of the desired results;</td>
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<tr>
<td>3. Keeping measurement and reporting simple;</td>
<td>3. Monitoring and evaluating whether the resources;</td>
</tr>
<tr>
<td>4. Managing for, not by, results;</td>
<td>allocated are making the intended difference;</td>
</tr>
<tr>
<td>5. Using results information for learning and decision-making.</td>
<td>4. Reporting on performance to the public;</td>
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<td></td>
<td>5. Feeding back information into decision-making.</td>
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Table 2: OECD-DAC: The Principles and Components of Managing for Development Results (OECD-DAC 2008; Managing for Development Results 2007)
Gary Fields wins 2014 IZA Prize in Labor Economics

Professor Gary Fields, whose research, teaching and outreach revolves around the world’s poorest people, is the winner of the 2014 IZA Prize in Labor Economics for his outstanding contributions on the importance of efficient labor markets to fight poverty and foster economic development in low- and middle-income countries. Fields, the John P. Windmuller Chair in International and Comparative Labor, ILR School, joins an elite group of IZA Prize-winning economists.

The IZA prize is awarded annually by the Institute for the Study of Labor (IZA), a private independent economic research institute based in Bonn that focuses on global labor market analysis, for outstanding academic achievement in the field of labor economics.

According to the award statement from the IZA Prize Committee, Fields pioneered economic thinking about labor markets in developing countries by focusing on indicators such as poverty, inequality, and income mobility. Fields’ policy recommendations aim at increasing the level and security of wages for employees and the self-employed by creating incentives for investment in the private sector, growth, and international trade, and by providing the necessary skills and business knowledge to stimulate labor demand.

In his groundbreaking book Working Hard, Working Poor: A Global Journey (Oxford University Press, 2011), Fields illustrates that global poverty is a problem of the quality of employment, not, as widely believed, a matter of high unemployment rates, which are often lower in low- and middle-income countries than in high-income countries.

The Institute for African Development joins with Professor Fields’ colleagues at the ILR School in offering our sincere congratulations on this noteworthy achievement.

Professor Emeritus Norman Uphoff Wins 2015 Olam Prize for Innovation in Food Security

Norman Uphoff, professor emeritus of government and former director of the Cornell International Institute for Food, Agriculture and Development (CIIFAD), who has been working with the System of Rice Intensification (SRI) for over twenty years, accepted the international Olam Prize for Innovation in Food Security during the third Global Science Conference on Climate Smart Agriculture March 16, 2015, in Montpellier, France. Olam International, a leading global agri-business committed to responsible growth, awarded the prize to Professor Uphoff and the SRI International Network and Resources Center (SRI-Rice), based at Cornell University.

SRI is a climate-smart methodology with outstanding results for rice production that enhances crop yields and climate change resiliency. The prize went to SRI for its impact on the availability, affordability, accessibility, and adequacy of food and provides $50,000 to support further SRI research. Given that the livelihoods of over one billion people, many in emerging markets, depend upon rice production, the importance of this research can hardly be overstated.

Capitalizing on biological processes and on plant-soil-microbial interactions, the system requires 80–90 percent fewer rice seeds, up to 50 percent less water, and in many instances no fertilizer. Yields are boosted by 20–50 percent, with farmers’ costs reduced by 10–20 percent. SRI methods include alternately drying and wetting the rice field (rather than the usual practice of continuous flooding), adding organic matter to soil, and planting single, young seedlings very widely spaced apart rather than crowded together. These carefully designed practices produce deep-rooted rice plants with a greater diversity of soil organisms. The healthier, more robust plants are better able to withstand the stresses of drought, flooding, storm damage, pests, and disease.

SRI today is being promoted by governments in China, India, Indonesia, Cambodia, and Vietnam, where two-thirds of the world’s rice is produced. Since 2010, SRI-Rice has been conducting research on SRI and the application of its methodologies to other food crops. More information is available at http://olamgroup.com/news/game-changing-rice-production-methodology-awarded-olam-prize-innovation-food-security/#sthash.cuhx34oC.dpuf.
At an international roundtable on the impacts of Ebola on Africa held in Warren Hall November 10, 2014, public health, policy, government, and trade experts discussed concerns about an overtaxed public health infrastructure in West Africa. The roundtable, “Social, Economic, and Political Impact of the Ebola Pandemic,” was organized by the Institute for African Development and the Mario Einaudi Center for International Studies at Cornell, and moderated by IAD Director Muna Ndulo, Professor of Law and Elizabeth and Arthur Reich Director of the Leo and Arvilla Berger International Legal Studies Program.

The roundtable brought together leading experts to discuss the impact of the pandemic from different perspectives. Panelists included China Akukwe, Professor of Global, Preventive, and Community Health at the George Washington University School of Public Health; Nathaniel Hupert, MD, MPH, Associate Professor of Health Care Policy and Research, primary care physician, and researcher in public health response logistics at Weill Cornell Medical College; John Panzer, Sector Manager of the World Bank’s International Trade Department; and Nicolas van de Walle, Maxwell M. Upson Professor of Government at Cornell University.

There is global consensus that the ebola pandemic brought untold damage not only to the health and social welfare of the affected countries, but also to mining, agriculture, and service industries globally, as investors evacuated foreign workers, borders closed, and international flights were suspended. Combating the disease has imposed a financial burden on the affected countries, according to economist John Panzer of the World Bank. These countries lack basic infrastructure and at the time of the outbreak were just beginning to thrive following years of civil war in the region. “This crisis occurred in the very countries that were the least prepared to deal with it,” Panzer said, later adding that their economies “are starting to stabilize.”

According to Akukwe, there were signs at the time of this discussion in November that the epidemic was beginning to slow down, with the number of new cases being reported in Liberia and Guinea decreasing. The situation was not as dire outside of West Africa, where fewer Ebola cases were reported.

According to Cornell professor Nicolas van de Walle, “there have been very clear efforts in the name of public health in these countries over the past twenty years. There is no doubt that countries are usually better served if they do things on their own [rather than relying solely on aid], and if there’s a will to solve problems in public health,” including training more doctors.

Panzer cited economic projections from early October. “At that time we were expecting the fiscal impact [of Ebola] in these countries would be about 5 percent of GDP … as large as all the foreign aid coming to these countries.”

Dr. Nathaniel Hupert, a disease and disaster preparedness expert at Weill Cornell Medical College, has been working since 2008 to help the U.S. government interpret statistical scenarios, or “what the mathematical modeling community is saying on infectious diseases,” such as large-scale projections on the 2011 global influenza epidemic. The modelers “have some challenges with Ebola,” he said. “It’s very difficult to get a lot of data out of these three countries. What we’re faced with is a very complex situation where the [results of] decisions that are made on data from today is not known until months later.” Hupert said large treatment centers were hurriedly built near Monrovia, Liberia; and as of November another 15 facilities were under construction in the region. “Eventually, the Ebola outbreak will go away,” he said.
Spring 2015 Symposium Report

Education and the Development of Human Capital: Outcomes for Equality and Governance in Africa

The Cornell Institute for African Development, with co-sponsorship from the Mario Einaudi Center for International Studies and the Department of Development Sociology at Cornell, held its annual spring symposium April 17–18, 2015 on the Cornell campus. The theme, "Education and the Development of Human Capital: Outcomes for Equality and Governance," examined strategies for ensuring that economic growth is channeled into greater investment in education and human capital development so that growth translates into improved livelihoods for people and policies that build the capacity of youth and other disadvantaged communities.

While the African Development Bank's 2014 Economic Outlook Report observes that, generally speaking, Africa has recently made substantial progress in human development, with poverty levels falling, incomes rising, and education and health indicators showing considerable improvement, in a significant number of countries income inequality is still widening, and education and health indicators are deteriorating. Thus the AfDB Report further observes that there is room for more progress in areas of inclusion, gender equality, and environmental sustainability.

Clearly Africa needs to invest more in education and human capital development if its growth is to be sustainable and to translate into improved living standards for all Africans. Investment in education will also help improve African economic competitiveness in world trade and thereby create jobs for Africans.

To address these issues, the 2015 IAD symposium examined education and development of human capital with emphasis on outcomes for development and governance. We endeavored to identify challenges facing the education sector in Africa and to analyze which policies empower the poor and landless and promote equality and good governance.

Speakers included David Sahn, International Professor of Economics at Cornell, who spoke about a value-added model for cognitive achievement in Madagascar; Aldo Stroebel, Executive Director, National Research Foundation, South Africa; Josephine Beoku-Betts, Professor of Sociology and Women's Studies, Florida Atlantic University, speaking on women and science in higher education in Ghana; Susan Shepler, Associate Professor of International Service, American University, who discussed responsibility for schooling in rural communities; Jace Pillay, Professor of Education and Care in Childhood, University of Johannesburg, who spoke about education and inclusion, especially for vulnerable children; and John Osiri, Clinical Professor in Entrepreneurship, Washington State University, who talked about the influence of education on religion and innovation.

In her keynote address, Teboho Moja, Clinical Professor of Higher Education, Steinhardt School of Education, New York University, focused on the inequities found in society and left the audience pondering the question of where equity is achievable in an unequal society. Aldo Stroebel explained that Africa needs an alternate path if it is to achieve gains in education and the well-being of its people. The Western model of education, while good for some, he said, is not necessarily the only path. It is essential for African countries to meet the basic needs of their citizens and to face the practical realities of developing the continent. Dr. Stroebel further cautioned that while NGOs have contributed significantly to filling the gaps neglected by government, these organizations are not in the business of building states.

Students from Wells and Houghton Colleges, along with Cornell and Ithaca community members, were in attendance for the event. A complete schedule of events is available on our web site at http://iad.einaudi.cornell.edu/
I have never learned so much about the continent as I did during this seminar. In our search to define problems and find solutions, we stumbled upon racism, game conservation, and agricultural innovations. I only wish I had been better able to keep track of all the information.

I really enjoyed taking this seminar. There are not many classes in which a non-major undergraduate student can join an active discussion of the presentations about ongoing research and projects with other faculty and graduate students. I also really liked the cordial atmosphere of the class—as well as the lovely refreshments!

The Institute for African Development hosts a seminar series on Issues in African Development, with a different theme selected for each semester. The Spring 2015 series surveyed a few of the myriad issues surrounding the management of natural resources in Africa. This is a recurring theme in development studies. Africa is generously endowed with resources including land, hydrocarbons, minerals, and timber; and natural resources are an increasingly important driver of sustainable economic growth. In recent years Africa’s natural resources have attracted increased interest from India and China as these countries look for mineral resources to fuel their industrial expansion.

When managed unwisely, resources may be depleted by external actors at the expense of a country’s inhabitants, leading to conflict over these resources (the resource curse); but used wisely, this wealth of resources can underpin and hold the promise of positive outcomes for African economic development.

The spring seminar series explored the management of Africa’s natural resources and the role of resources in development. Highlights of the series included a discussion of legal approaches to the mining of minerals as related to development, by IAD Director Muna Ndulo; a discussion about the transition from millet to maize farming in Eastern Uganda from a political ecology perspective, by Daniel Lumonya (Development Sociology, Cornell University); a riveting and disturbing presentation on the practice of “canned” safari hunting in South Africa, by Richard Schroeder (Geography, Rutgers University); a detailed presentation on the environmental determinants of food security in Madagascar, by Chris Golden (Center for Health and the Global Environment, Harvard); and a richly detailed and informative lecture on the many issues surrounding water rights along the Nile River, by Salman M.A. Salman of the International Water Resources Association. A complete schedule is available on our web site at http://iad.einaudi.cornell.edu/node/8340.

An average of 35 students, faculty, and community members attended the seminars each week. In their final papers, students provided evaluative feedback on the seminar experience.
Graduate Students Highlights

Student Excellence in Community Engagement Award, Gaurav Inder Singh Toor

Gaurav Inder Singh Toor (B.S., Political Science and Economics, Trinity College, Connecticut; Ph.D.Candidate, Government, Cornell University), an active participant in the Issues in African Development seminar series, was honoured at Cornell’s annual Community Engagement Showcase on April 15, 2015, for his work with the “Social Orphans” project in Njoro, Kenya. The Student Excellence in Community Engagement Award recognizes an engaged learning and research project that has promoted service, diversity, interdisciplinary learning and/or research with community partners. Gaurav received the award for his “Sustainable Orphanages for Orphaned Children and Local Communities” project, operated in partnership with the Ananda Marga Mission in Kenya.

The Social Orphans project has the goal of safeguarding the future of thirty girls at the Ananda Marga Orphanage in Njoro. The orphanage burned to the ground during the 2007 post-election violence. In summer 2014, Gaurav and several other students from Trinity College, where he was enrolled at the time, went to Kenya on a Kathryn Wasserman Davis ‘Projects for Peace’ grant with three goals in mind: 1) to rebuild the destroyed orphanage; 2) to connect each girl with a family from a nearby town; and 3) to kick-start a sustainable source of income by establishing a professional bakery.

The orphans lacked traditional networks of familial and community connections and were socially ostracized as well. Gaurav and his colleagues were actively involved in reconstructing the orphanage after it was destroyed during the 2007-08 violence in the Rift Valley. They also worked to establish social connections for each girl with families in nearby Nakuru. The bakery is well underway and will provide income as well as training in professional skills to the girls in the orphanage.

Gaurav has returned frequently to Njoro and continues his engagement with the orphanage. He has also been active in fundraising for completion of this project and future initiatives. His hope is to develop a new type of progress plan where orphanages become centers of growth, not dependency, in Kenya, in African and in the world. For more information on the project please visit https://www.crowdrise.com/empowersocialorphans/fundraiser/gauravtoor.

IAD Fellows Update

Gorata Makepe (LLM, Cornell Law School, 2011) passed the New York bar exam shortly after graduating and then return home to Botswana in August of that year. In January 2012, she relocated to Johannesburg, South Africa to begin working for Bowman Gilfillan, Inc, one of the “Big 4” law firms in South Africa and one of the largest law firms in Africa.

Gorata has since taken and passed all of the requirements to practice law as an attorney in South Africa. She is an associate in the Banking and Finance team and works in debt capital markets, leveraged and general finance space. She enjoys working for her firm because it has a pan-African vision and as such has offices in Cape Town, Durban, Gaborone, Antananarivo, Nairobi, Kampala, and Dar es Salaam. The firm also has good relationships with firms across Africa as well as worldwide. Gorata is excited about Africa’s growth and development. Through her work she is able to be actively engaged and involved in the building of the African future.
Einaudi Photo Contest Winner, Angela Siele

Institute for African Development Fellow and graduate student in International Agriculture and Rural Development Angela Siele took top honors for her photograph “My Tenth Child” in the Mario Einaudi Center’s annual Research Travel Grant photo contest. Each year the Einaudi Center for International Studies and its associated programs sponsor a number of International Research Travel Grants that provide travel support to Cornell University grad students conducting short-term research and/or field work in countries outside the United States. Students may submit photographs from their Einaudi-funded travel to the Einaudi photo competition for a chance to win cash prizes offered to the top entries.

The photographs in the Center’s annual contest tell a story as diverse as the Cornell graduate students who captured them. This year, seventeen graduate students submitted photos related to their research or study in Veterinary Medicine, Near Eastern Studies, Natural Resources, International and Comparative Labor, International Agriculture and Rural Development, History, Government, Fine Arts, Developmental Sociology, Public Affairs, City and Regional Planning, Theater, Anthropology, and Asian Studies. Members of the Cornell community including faculty, staff, and students who attended the Einaudi Center’s annual reception during International Education Week voted for their picks from among the final entries.

Angela took her winning photo in Nyanza Lac Town, Burundi, while doing research on crop diversity and implementation of the Keyhole Garden in Gasaba Village. She has decided to donate a major portion of her cash award to the subject of her photograph, a Burundian woman holding her child. Congratulations, Angela!
—Systems Engineering Continued from page 5

- An extensive global educational infrastructure focused on its body of knowledge and practice (Worldwide Directory of Systems Engineering 2015; Contributors 2015a);
- An existing corps of practitioners, many of whom might be repurposed into operational and instructional roles within the development intervention community, reducing the ‘time to competence’ across the sector (Industrial Engineers 2014, 2015);
- An enormous body of experience in a diverse range of disciplines (Worldwide Directory of Systems Engineering 2015; Contributors 2015a; Contributors 2015b);
- Widespread adoption and application among governments as an acquisition methodology.

We further assert that Systems Engineering’s principles and practices are highly compatible with the principles of the Busan Partnership for Effective Development Cooperation. Also, the core components and principles embedded in the ‘Managing for Development Results’ approach are prominent within systems engineering’s epistemology. Finally, the systems engineering body of practice and knowledge is more robust, more mature, and has been studied longer than any of the RBA or MfDR protocols. The following section will examine the efficacy of systems engineering in facilitating development interventions in alignment with Busan, RBA, and MfDR principles and protocols.

It would not be appropriate, nor is there enough space in this forum, to provide a comprehensive treatise on systems engineering here. The approach we will take instead is to provide a range of definitions and an overview of the process used in U.S. government acquisition projects; and to briefly examine the attributes of these definitions in the contexts of the Busan, RBA, and MfDR principles and protocols.

What is Systems Engineering?

The Systems Engineering Body of Knowledge references the following INCOSE’ definition (SEBok 2014; International Council on Systems Engineering 2011). Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, then proceeding with design synthesis and system validation while considering the complete problem. Systems engineering integrates all the disciplines and specialty groups into a team effort, forming a structured development process that proceeds from concept to production to operation. Systems engineering considers both the business and the technical needs of all customers, with the goal of providing a quality product that meets the user’s needs.

In the introduction to the Second Edition of the ‘Hand-

1. International Council on Systems Engineering (www.incose.org)

Table 3. Definitions of Systems Engineering

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<td>Engineering Systems is an important new field of study focusing on the complex engineering of systems in a broad human, societal, and industrial context. It takes an integrative, holistic view of large-scale, complex, technologically-enabled systems that have significant enterprise-level interactions and socio-technical interfaces. The establishment of this new field has been a significant step toward evolving the holistic engineering-management science needed to address the complex systems challenges of this century. Systems Engineering is proposed by the authors as an essential field that appropriately lies within the larger field of Engineering Systems.</td>
<td>Systems engineering is a methodical, disciplined approach for the design, realization, technical management, operations, and retirement of a system. A “system” is a construct or collection of different elements that together produce results not obtainable by the elements alone. The elements, or parts, can include people, hardware, software, facilities, policies, and documents; that is, all things required to produce system-level results. The results include system-level qualities, properties, characteristics, functions, behavior, and performance. The value added by the system as a whole, beyond that contributed independently by the parts, is primarily created by the relationship among the parts; that is, how they are interconnected. It is a way of looking at the “big picture” when making technical decisions. It is a way of achieving stakeholder functional, physical, and operational performance requirements in the intended use environment over the planned life of the systems. In other words, systems engineering is a logical way of thinking.</td>
<td>• Systems Engineering (SE) encompasses the entire technical effort. It ties together all aspects of a project to ensure that individual parts, subsystems, support equipment, and associated operational equipment effectively function together as intended in the operational environment. • SE is also a logical sequence of processes and activities that transform operational needs into an optimal system-level configuration. • Systems Engineers: integrate and balance the work of numerous engineering and technical disciplines from the initial system design to the production and fielding of the final product.</td>
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book of Systems Engineering and Systems Management,’ Andrew Sage and William Rouse (2009) characterize systems engineering as “the management technology that controls a total system life-cycle process, which involves and results in the definition, development, and deployment of a system that is of high quality [and that is] trustworthy and cost effective in meeting user needs.”

Table 3 provides basic definitions of systems engineering taken from the U.S. Department of Defense (DoD), NASA, and MIT’s Engineering Systems Division. The NASA and DoD quotes are taken from source materials used to train stakeholders in the processes used by the U.S. government to design, plan, implement, and manage complex acquisitions—where the item being acquired is best characterized as a system. These definitions are included to illustrate that governments have used systems engineering for several decades to manage the efforts of myriad stakeholders, who must collaborate to produce and acquire their most complex and technically challenging products—e.g. the Global Positioning (Satellite) System (SEBoK 2014, 2015) and the Miniature Seeker Technology Integration (MSTI) spacecraft (SEBoK 2013, 2015).

This ‘systems perspective’ is compatible with the principles embedded in the Busan Partnership agreement and MfDR. For example, the RBA perspective posits that ‘inputs’ such as funding allocations, school construction, book purchases, and teacher-training do not assure that all of these elements will come together to produce a national cohort of high-school graduates. Under the definition provided by MIT’s Rhodes and Hastings (2004), a systems view would encompass all of the required elements (inputs)—including even the students—but it would also include processes to assure both the appropriateness of the solution’s design and the project’s ability to deliver. Each definition emphasizes delivering an appropriate and reliable result by focusing on each stage and component of the solution system—and the entire field of stakeholders and processes required to deliver and operate that system. Redress for every Busan Partnership, RBA and MfDR requirement can be found in these basic definitions.

Khisty, Mohammadi, and Amekudze (2012) synthesize a definition of the ‘systems perspective’ that expresses its holistic nature as might be required for a results-oriented development intervention. ‘The systems approach represents a broad-based systematic approach for problem solving and is particularly geared toward solving complex problems that involve systems. A system is a set of interrelated parts—components—that perform a number of functions to achieve common goals. Systems analysis is the application of the scientific method modified to capture the holistic nature of the real world in order to solve complex problems. In fact, the systems approach ought to be called the systemic approach; systemic in the sense that is offers systemic (holistic rather than piecemeal) as well as systematic (step-by-step rather than intuitive) guidelines for engineers to follow’ (Khisty et al. 2012).

Current DoD acquisition doctrine is focused on capability rather than components. Under this perspective, in a development program where ‘capability’ (outputs, outcomes, and impact) entails a national cohort of high school and college graduates employed in strategically significant industries, the project might be framed as a workforce development system and address additional ‘system’ issues beyond classrooms and teachers such as:

- Transportation to and from schools;
- School lunches;
- Security;
- Ongoing operation and maintenance of facilities;
- Facilities to assure a capacity for at-home or community-based study;
- Industrial opportunity development in sync with graduation rates.

Can a nation that is critically dependent on aid implement a comprehensive development initiative such as the approach described above? The author contends that, if a successful strategic workforce development program is what is actually needed—where schools, books, teachers and students are only a few of the components—then the successful development and execution of a strategic workforce development program should be the task at hand. If this assertion is correct, then the efforts of the international development community might be best served by focusing on the development and deployment of methodologies that assure the successful execution of critical development projects—not the successful deployment of aid. This is a subtle yet important distinction. The question of how and where aid facilitates the successful execution of critical development projects is secondary to the selection of appropriate projects and use of appropriate management paradigms to deliver them. If the appropriate solutions are ‘results’ that require an integrated array of components, processes and stakeholders, then systems engineering is the appropriate paradigm.

Is Development Intervention Systems Engineering a Practical Path?

Systems Engineering is one of the world’s most highly developed management paradigms and is being used by governments to assure the acquisition of solutions, where those solutions are integrated product or service systems. Supporting this contention, Vanek, Jackson and Grzybowski (2008) note that “in the world of complex systems developed under contract, systems engineering has a well-articulated, generally accepted, client-mandated methodology.” Given these considerations, evolving a variant of systems engineering that is tailored to a development intervention framework would seem to be a more useful pursuit than fine-tuning RBA paradigms for
international aid expenditures. The only question should be whether or not systems engineering can facilitate the reliable execution of appropriate solutions.

With regard to operational efficiency, unlike with RBA, there is empirical data showing that, on NASA projects, the level of applied systems engineering is inversely proportional to cost overruns. Figure 2 is based on the Economic Value of Systems Engineering from the Systems Engineering Body of Knowledge (SEBoK 2013) and “summarizes the analyses by Werner Gruhl, which relate investment levels in Systems Engineering to cost overruns of the United States National Aeronautics and Space Administration (NASA) projects.” The diagram clearly indicates that as the level of investment in systems engineering overhead increases, cost overruns decline. Insofar as goals related to cost-efficiencies are concerned, there is every reason to believe that systems engineering provides a practical path.

While there is evidence to support the benefits systems engineering has brought to NASA, it should be noted that the technical scope and complexity of NASA and DoD projects generally exceed that of projects undertaken by the international development community. It is not unusual for a NASA or DoD project to require physical materials that did not previously exist—such as a heat resistant reentry vehicle or aircraft with a minimal radar image. Although the technical complexity may be greater, the social complexities of development intervention projects may well exceed those encountered in NASA projects—and therefore merit the application of the comprehensive analysis and design validation inherent to a systems engineering approach.

For example, there is a documented pattern where, in poor communities, potential students do not attend school because they are required to work in the field or, in the case of female family members, their household duties are prioritized over education (Nordensvaard 2014; Hartmann-Mahmud 2011; Kea 2007). A solution system comprised of books, classrooms, schoolhouses, and teachers does not provide a mechanism to account for these stakeholders. In another scenario, entire cohorts may be left behind during the time that elapses while facilities are being built and teachers are being trained. How can the design of solution systems extend to these stakeholders and scenarios? Should mobile classrooms be added to the mix? Should families be compensated for the loss of the labor provided by their children—considering that an uneducated adult might cost the state more in the long run? Are there technologies that could be added to the mix, such as mobile broadcast vehicles that transmit education materials over 4G to households that receive low-cost tablets?

Under an RBA-style program, in a resource-constrained country, where the release of funding is tied to the number of graduates, how might the costs of these solutions be viewed? What level of resources might a poor country expend in pursuit of a solution’s design versus reflexively building schoolhouses?

Investment in design and design-validation activities is vital for an international development solution—just as it is for a DoD or NASA project. In a systems engineering paradigm, acquisition projects do not proceed unless there is formidable validation that (a) the solution’s design is capable of delivering the desired capability (results); and (b) the project is capable of producing and maintaining all of the artifacts, processes, and services comprising the solution-system. There is a good deal of evidence that investment in the early requirements and design stages of a project provides the greatest benefits and assurances of downstream success. An aid paradigm that withholds resources from the design and implementation phases may be performing a disservice, by incentivizing solutions of suboptimal scope.

The U.S. DoD Acquisition Framework

Table 4 summarizes the major phases of the Integrated Defense Acquisition Technology and Logistics Life Cycle Management System (Defense Acquisition University 2015a). This DoD Acquisition Framework is a life-cycle that depicts each of the major phases of an acquisition project as a comprehensive effort. As elaborated
in Table 4, each phase of the process plays a distinctive role in identifying appropriate solutions, mitigating risks, and assuring an ability to produce, implement, and operate the solution. Each phase is preceded by a review of the results from previous stages of the project that are germane to the current go/no-go decision. Each review entails a rigorous examination of a comprehensive set of the project’s financial, technical, process, stakeholder, and regulatory planning documents, both for the preceding phases and for the phases subsequent to the (potential) decision to proceed (see Figure 3). Figure 3 is a simplified overview of the elements included in the Defense Acquisition Milestone Review process. It is included to provide some insight into just how comprehensive the process might be—and the types of competencies that might be developed through its execution.

An extensive evaluation process preceding each phase of a project is one of system engineering’s key risk reduction activities. It is also highly compatible with the MfDR’s core components and stages—and its focus on ‘dialog through all phases of the development process.’ As elaborated in Table 2, Stages 3 through 5, the ‘Milestone Review and Phase Funding Decision’ process (Figure 3, Defense Acquisition University 2015a) entails monitoring, evaluation, rolling feedback from performance data into downstream decision making—and reporting on performance to the public. This is a clear distinction from Results-Based Aid’s ‘hands-off until the results are in’ stance. These milestone reviews or ‘phase-gates’ are an integral component of the systems engineering process. They provide a point of coordination where stakeholders can reevaluate and fine-tune their plans. Each stage in the process is also associated with a diverse range of funding sources and requirements (see DAU 2015a, Financial Management). For example, funding committed to prototyping may receive release approval only after a critical design review. This approach is based on the progressive reduction of risk and a phase-by-phase increase in confidence with regard to the project’s success. All of the products and processes that build that confidence are viewed as valuable and worthy of attention and support.

**Increasing resident capacity is, by definition, development**

The experiences derived from participating in this rigorous and collaborative process help to deepen the systems engineering capability across a range of governmental and private sector entities—which is also a form of development. Once engaged in a program, implemented under a rigorous development process, participants are better prepared for subsequent programs. As a nation’s resident systems engineering capability grows, that nation’s capacity to deliver additional projects also grows.

<table>
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<tr>
<th>Phase</th>
<th>Explanation</th>
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<tr>
<td>Material Solution Analysis</td>
<td>• Analyse alternatives to assess potential solutions to capability need;</td>
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<td></td>
<td>• Identify key technologies and estimate life cycle costs;</td>
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<td></td>
<td>• Consider off-the-shelf solutions from large and small businesses;</td>
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<tr>
<td></td>
<td>• Identify solutions to capability need;</td>
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<td></td>
<td>• Complete Technology Development Strategy.</td>
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<tr>
<td>Technology Maturation and Risk Reduction</td>
<td>• Reduce technology risk, determine and mature appropriate set of</td>
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<td></td>
<td>technologies to integrate into full system;</td>
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<td></td>
<td>• Demonstrate critical technology elements on prototypes and complete</td>
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<td></td>
<td>preliminary design;</td>
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<td></td>
<td>• Identify an affordable program or increment of useful capability;</td>
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<td></td>
<td>• Demonstrate technology in relevant environment and identify and assess</td>
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<td></td>
<td>manufacturing risks;</td>
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<tr>
<td></td>
<td>• Provide two or more competing teams producing prototypes of</td>
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<td></td>
<td>system and or key system elements.</td>
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<tr>
<td>Engineering and Manufacturing Development</td>
<td>• Develop a system or increment of capability;</td>
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<td></td>
<td>• Complete full system integration;</td>
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<td></td>
<td>• Develop affordable and executable manufacturing process;</td>
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<td></td>
<td>• Ensure operational supportability;</td>
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<td></td>
<td>• Reduce logistics footprint;</td>
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<td></td>
<td>• Implement human systems integration;</td>
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<td></td>
<td>• Demonstrate system integration;</td>
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<tr>
<td></td>
<td>• Demonstrate interoperability and safety.</td>
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<tr>
<td>Production and Deployment</td>
<td>• Achieve operational capability that satisfies mission needs;</td>
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<td></td>
<td>• Low-rate initial production (limited deployment for software intensive</td>
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<tr>
<td></td>
<td>systems with no development hardware);</td>
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<tr>
<td></td>
<td>• Full-rate production (full deployment for software intensive systems);</td>
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<tr>
<td></td>
<td>• Deliver fully funded quantity of systems and supporting material and</td>
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<tr>
<td></td>
<td>services for program or increment to users.</td>
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<tr>
<td>Operations and Support</td>
<td>• Execute support program that meets performance requirements and</td>
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<td>sustains system in most cost-effective manner.</td>
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**Table 4. Major Phases of the Integrated Defense Acquisition Technology and Logistics Life Cycle Management System**

**Phases**

- Material Solution Analysis
- Technology Maturation and Risk Reduction
- Engineering and Manufacturing Development
- Production and Deployment
- Operations and Support
University (DAU), which provides training to more than 180 thousand individuals each year. Its programs are available to DoD and Aerospace stakeholders in government agencies (military and non-military) and their network of subcontractors. The processes and practices taught at the DAU serve as an interface for collaborating with government agencies on acquisition programs; accordingly, the DAU mission extends to helping to assure a national systems engineering capability. For example, employees of defense industry contractors may attend DAU courses at no cost (DAU 2015b).

The U.S. government also sponsors the Systems Engineering Research Center (SERC 2014), which is a University-Affiliated Research Center of the U.S. Department of Defense. The SERC leverages the research and expertise of faculty, staff, and student researchers from more than twenty collaborating universities throughout the United States. In addition to participating in government research projects, the collaborating universities offer public systems engineering degree programs and special programs for Fellows working for corporate clients such as IBM and Raytheon.

**Developing a Systems Engineering Capability**

The DAU and the SERC are only two of a host of programs conducted in the United States to assure a strong systems engineering capability—which is viewed as a national imperative. We recommend a similar approach focused on development intervention. Where development aid and the execution of development intervention programs is an imperative, we recommend the following:

- **Adopt systems engineering as the de facto development intervention management paradigm.**
- **Form regional university coalitions to pool resources into systems engineering centers of excellence, providing research, instruction, and consulting support.**
- **Integrate collaborative interaction between international development intervention programs and the regional university-based systems engineering centers of excellence by developing process standards conducting joint research programs and making research results and process documentation available to the public.**
- **Institutionalize collaboration between sponsoring governments, resident industrial organizations, partner countries, and NGO partners similar to the DAU’s practice with DoD and aerospace contractors.**
- **Provide public opportunities for research, instruction (degree and certification levels) to interested students in exchange for service.**
- **Develop, implement, and standardize high-level systems acquisition life-cycle processes appropriate to development intervention programs to serve as standard interfaces, educational frameworks, and the basis for organizing centers of expertise.**

**Conclusion**

The author finds significant shortcomings in the Results-Based Aid paradigm. Its hands-off approach to the process of designing, developing, and implementing solutions is inconsistent with the approaches actually in practice within donor nations when it comes to implementing their own acquisition programs. It is extremely limited as an incentives paradigm and has the potential to significantly incentivize suboptimal solutions. We do not question the sincerity of its advocates; in fact we applaud any movement to advance society’s capacity to en-
hance the quality of life for the billions of people who live in poverty and deprivation. We advocate focusing the international development discourse on the development and deployment of methodologies that assure the successful selection, development, and execution of critical and appropriate development projects as opposed to the successful deployment of aid. We reiterate our belief that the question of how and where aid facilitates the successful execution of critical development projects is secondary to methodology for the selection and development of appropriate projects—and the use of appropriate management paradigms to deliver them. Under this perspective, a nation’s ability to successfully conceive and execute effective development interventions is the critical success factor to producing results. Finally, we reassert that Systems Engineering is the most effective management paradigm available for addressing the complexity and requirements of the current state of international development cooperation. Developing a global ‘development intervention systems engineering’ capability is a high-leverage, high-return pursuit that is worthy of sustained attention and resources. We welcome discourse

James Mason has a Ph.D. in Socio-Technical Systems from Stevens Institute of Technology and is a Visiting Scholar at the Cornell University Institute for African Development. His research examines the intersection of Human Capital, Social Capital, Entrepreneurship, and Economic Development as a Complex Adaptive Socio-Technical System. He holds an MBA from the Johnson Graduate School of Management at Cornell University and has completed a comprehensive profile of executive education in organization, strategy, workforce development, and process improvement, including programs at Harvard, Stanford, MIT, Carnegie Mellon, and Bell Labs.

Bibliography


—Continued on page 18
Outreach

Teaching Global Competency through Literary, Visual, and Performing Arts
June 29–30, 2015

The Einaudi Center for International Studies’ outreach office is seeking area studies experts to present short lectures at the upcoming International Studies Summer Institute, “Teaching Global Competency through Literary, Visual, and Performing Arts” for K-12 teachers. The institute will be held at Cornell University in Ithaca, NY on June 29 and 30, 2015.

This institute will support teachers in building knowledge of world cultures through the arts and will include lectures and hands-on workshops. Lectures—focused on any aspect of the arts and anchored in area studies—should be 15 minutes long, followed by a 15-minute question and answer session. Lectures will provide participants with an incisive and focused entry-point into the topic. Questions will likely include advice sought on how to teach the material meaningfully, as well as questions about art forms, processes, and cultural contexts. Handouts/articles are welcomed. Examples of your own students’ engagement in the topic through your teaching are also welcome.

Our goal is to give teachers tools—content and practice—to foster intercultural competence and global learning skills for their students and support internationalizing curricula. Globally-focused literary, visual, and performing arts can play a significant role in teaching international cultures, traditions, and languages, while addressing Common Core literacy and other state-mandated standards. The study of global arts provides a unique approach into the international and an enriched approach to the study of art.

IAD Internships

The Institute for African Development (IAD) internship program supports Cornell’s mission “to promote a culture of broad inquiry throughout and beyond the Cornell community.” The program integrates the university’s core values on “promoting cross-cultural and cross-national understanding” and “using knowledge to enlighten ourselves and benefit the world.” The mission of the IAD Summer Internship Program is to engage new development practitioners and researchers in the field of African development and to build collaborative partnerships with public, non-profit, and non-governmental agencies addressing critical issues—such as food security, human rights, and education—relevant to Africa’s development. The main objective of this program is to enhance and reinforce academic learning by providing students the opportunity to actively engage with individuals and organizations directly involved in policy and program development in Africa.

The program is designed to stimulate discussions around policy reform and program development in Africa and to deepen students’ understanding of African culture and the socioeconomic, political, and historical context of development. Students will gain valuable international work and research experience and at the same time contribute to the dialogue on solutions for Africa’s development challenges by providing the host organization with a detailed policy review, research paper, or professional report relevant to the host’s purpose and mission.

Objectives

Through participation in a summer internship in Africa, students will:

- Develop and refine transferable skills (such as research, cultural flexibility, and professional conduct) that can be transported and utilized across cultures and disciplines;
- Critically engage with their personal strengths and weaknesses and understand how these impact professional success in cross-cultural work environments; and
- Improve their understanding of the socioeconomic, cultural, and political landscape in which policy decisions are made in Africa.

Placements

Internship placements in the IAD program provide students with academically related and practical field work experience. Students with a dedicated interest in African development engage in community service, social advocacy work and personalized learning that is not available in the traditional classroom setting. IAD views the internship program as an integral part of a student’s education, building awareness of the challenges of development needs of the host communities.
Call for Papers

Structural Transformation of African Agriculture and Rural Spaces Conference
Addis Ababa, Ethiopia, December 4–5, 2015

Background
Sub-Saharan Africa is rapidly urbanizing and experiencing accelerated economic growth. Yet the number of people living in extreme poverty remains distressingly high. Moreover, growing empirical evidence on poverty traps suggests persistence in extreme poverty, especially among those living in rural areas and working in agriculture. Harnessing the gains from growth and development for the alleviation of rural poverty requires boosting the productivity of land, labor, and other agricultural inputs through improved technology adoption and the elimination of factors that constrain investment, the efficient use of resources, and risk mitigation. New micro-level insights based on rigorous research using high quality data can guide the emerging macro-level policy discourse around the structural transformation of African economies, and especially of African agriculture and the continent’s rural spaces.

Conference
Cornell University, in partnership with the African Development Bank (AfDB), the African Economic Research Consortium (AERC), the Partnership for Economic Policy (PEP), and the World Bank, invites the submission of papers to be considered for presentation at a high-level conference on the Structural Transformation of African Agriculture and Rural Spaces, to be held on December 4–5, 2015 in Addis Ababa, Ethiopia, immediately following the AERC Biannual Research Workshop.

This event will bring together high-level policymakers and top-tier researchers from around the world to advance the dialogue on structural transformation in Sub-Saharan Africa and improve the feedback between the researchers who produce and analyze data and the policymakers who rely on timely and high quality research to improve decisions. The organizers invite submissions from all areas of work related to the micro-foundations of structural transformation in sub-Saharan Africa, including but not limited to: agricultural productivity and innovation, technology adoption, labor productivity, factor market performance, non-farm labor and labor re-allocation, human capital investment and dynamics, financing and risk management, market access, and related fields of policy-relevant inquiry. All submissions must focus on sub-Saharan Africa and use micro-level data on individuals, households, firms, or other organizations. Papers authored by African scholars are particularly encouraged.

Submission Instructions
Extended abstracts (of length 3–5 pages) explaining precisely the core question(s), data and methods used, and (anticipated) findings or complete papers should be submitted by email to staars@cornell.edu before August 1, 2015. Acceptance decisions will be communicated within six weeks of the submission deadline. The African Development Bank will cover all economy class travel costs for one author/presenter of a limited number of the papers selected for inclusion in the program. For more information, contact Dr. Paul Christian at staars@cornell.edu.

Job Opportunities

The Compliance Review and Mediation Unit (CRMU)
CRMU is the entity of the African Development Bank Group that administers the Independent Review Mechanism (IRM). A performing IRM requires an effective and efficient approach to information, data and knowledge management and robust outreach and communication towards stakeholders, particularly project affected communities. The Compliance Officer in charge of Information, Outreach and Knowledge Management will report directly to the Directors of CRMU, but shall also assist the IRM Experts when conducting Compliance Reviews of other CRMU staff members in their specialized fields of expertise. Deadline for application: Deadline: May 25, 2015
Chief of Party, Monitoring and Evaluation and Learning Project (MELP), Tanzania

SI is a Washington, DC-area international development management consulting firm. SI’s mission is to improve the effectiveness of international development programs in improving people’s lives. We provide a full range of management consulting, technical assistance, and training services to strengthen international development programs and policies. We provide services globally in the areas of monitoring and evaluation, strategic planning, project and program design, organizational capacity building, and gender and social analysis.

SI services cross-cut all development sectors including democracy and governance, health and education, the environment, and economic growth. SI’s clients include U.S. government agencies such as USAID, the Millennium Challenge Corporation, the U.S. Department of State, bilateral donors, multilateral development banks, foundations, and non-profits. http://www.advance-africa.com/jobs-in-Tanzania.html#MELP.

International Consultant Governance Dimension of WCARO Strategic Plan, Senegal

The UN Entity for Gender Equality and the Empowerment of Women (UN-Women) was established by General Assembly resolution of July 2010 with the mandate to assist countries and the UN system itself to progress more effectively toward the goal of achieving gender equality, women’s empowerment, and upholding of women’s rights.

Duties include: Analysis and monitoring of trends and opportunities; Provide policy recommendations, strategic advice and proposed courses of action to the Regional Director and Country Representatives; Prepare analytical reports, briefing notes, background papers, summaries, and talking points as required by senior management; and, Engage in regional post-2015 discussions dealing with governance, conflict and personal security. Deadline June 1, 2015.

Assistant/Associate Professor of History, Huston-Tillotson University

The teaching assignment will include U.S. History survey courses, introductory African-American history courses, and courses in the secondary area(s) of specialization beginning August 2015. Responsibilities include the ability to present interesting and challenging history courses to both traditional and nontraditional students and to teach and work in accordance with the mission of the University. The successful candidate will also maintain office hours each week, advise and mentor history students, assist with registration, attend faculty meetings, and serve on standing committees.

Ph.D. in History. Applicants who are ABD and those with a Master’s degree will be considered for non-tenured track employment. Qualifications include a demonstrated record of excellence in teaching history, an enthusiasm for student intellectual growth and program development, and a commitment to scholarship.

A big thank you to all our student assistants: Stephan Metzgar, Alyssa Findley, Mihret Tamrat, and Morris McGinn. Congratulations to graduating seniors Stephan and Morris!
Conferences

African Studies Association, November 2015, California
The African Studies Association invites scholars to San Diego in November 2015 with the aim of rethinking the place of the state—as a subject of analysis, as an engine of data, as an arbiter—in the field of African Studies. We encourage panels, roundtables, and paper submissions that involve scholars and practitioners across all disciplines. We are particularly interested in panels that concern the following subjects:

- Networks and scales outside the state; Sovereignties, resistances and political communities; Archives, cultural property and digital flows; Decolonization and the foreclosures of independence; Data and statecraft; State power, language and performance; and Repurposing development studies.

http://www.africanstudies.org/annual-meetings

Authentic Learning in Higher Vocational Education, August 2015, Cape Town
The conference focuses on Authentic Learning in Higher Vocational Education, drawing together diverse fields and complex debates. It not only treads in the fields of cognitive, social, and cultural studies, but brings together debates surrounding authentic learning, pedagogy, and emerging technologies within the context of vocational higher education. Against this background the conference provides a platform to discuss contextualized pedagogies within authentic learning environments that prepare higher education students to face the challenges and complexities of an extremely demanding workplace that is neither well-defined nor equal. The Conference takes place from 31 August to 3 September 2015 in Cape Town, South Africa at the UCT Graduate School of Business in the V&A Waterfront.

Linking Open Education and e-Learning Research to Practice, July 2015, Kenya
The call for papers is now open for the 2015 International Conference of the African Virtual University (AVU). This will be the second conference of the AVU and will bring together researchers, policymakers and practitioners seeking to make sense of the challenges and explore emerging opportunities afforded by ICTs and open, distance and e-learning (ODeL) in addressing issues of access, equity and quality of higher education and training in Africa. Submissions should especially try to address the issue of linking open education and eLearning research to both policy and practice.

We invite papers from a broad range of research areas in ODeL at the macro, meso and micro levels. Papers should be submitted under one of the sixteen research areas (tracks) provided in the submissions guidelines. Like last year, mobile learning, MOOCs and OER still remain of particular interest. This year we also invite papers from IT industry professionals that focus on ICT innovations and solutions for education (including mobile technologies).

—Systems Engineering Continued

Pearson, M., M. Johnson, and R. Ellison. 2010. “Review of Major Results Based Aid (RBA) and Results Based Financing (RBF) Schemes.” UKAID The Department for International Development.
Worldwide Directory of Systems Engineering and Industrial Engineering Academic Programs. 2015.
Welcome everyone, and thank you all for being here. IAD Faculty Associates, friends, colleagues, parents and relatives, and students: this is a very special occasion as we recognize IAD Fellows who are graduating and moving on. IAD fellows have braved the never-ending Ithaca winters, especially this past winter, and made it through the year. They have worked hard and have every reason to be proud of their achievements. We are very proud of them as well.

Graduates: As you celebrate, do not forget to give credit to those who have made this possible: your parents, your professors and friends, your community, and those near and far who have supported, comforted, and cheered you along the way. As the African proverb puts it, “If you want to go somewhere quickly travel alone; if you want to go far, travel with others.” And you all have now travelled very far indeed.

Africa is now facing tremendous economic growth on the one hand and dire poverty on the other. Many of the root causes of poverty in Africa can be traced to the lack of good governance and lack of political will among our leaders. We are seeing in Burundi what happens when a leader refuses to leave after his term is over, and we have been watching via the media in horror as Africans are plucked from the ocean, risking their lives in the belief that somewhere there is a place where they can improve their present circumstances.

But famine, poverty, exile, and conflict need not be the narrative of our continent. A continent as resilient, richly endowed, and indeed blessed as Africa should be a global force, a success story. It is up to all of you to work towards making that a reality. Those of you educated as agriculturalists can work towards soil improvement and marketing strategies that will yield greater benefits to farmers and communities; those educated as engineers may be involved in the development of solar panels and investments in technology, infrastructure, and advances in health that will propel Africa forward, and those who have become educators and policymakers can work to empower others through education and policies that build the capacity of youth and other disadvantaged communities. We all can and must do our parts in building our continent.

If you believe, my friends, that the solutions of the past do not work, it is your responsibility to find new solutions for the future. And I believe many of you will. We are counting on you to make our future better. Africa is crying out for leadership. We need leaders who can dream dreams to make life better for all mankind. Unless we do something about the mediocrity of our leadership we will never solve our poverty and governance crises.

Remember always to serve those less fortunate, to volunteer your time to pull others up from where you once were. I believe that the only ones among you who will be truly happy are those who seek and find how to serve. My hope is that each one of you will find ways to contribute true service to your countries and your communities.

Knowledge is the basis of the competence you bring to your work and profession. But knowledge alone is not enough. There is also conviction. Conviction guides knowledge into particular directions. It guides our search for knowledge, and it guides our application of knowledge. Ours is an age that lacks conviction. We flee from judgment because we confuse it with being judgmental. Conviction guides our judgments.

But without conviction, there can be no direction, and without direction, there can be no journey. The philosopher Seneca puts it correctly, “if one does not know to which harbor one is sailing, no wind is the right wind.” There might still be movement, but from one unplanned destination to another. Don’t mistake activity for achievement. I hope that Cornell and IAD have helped you to develop your convictions, for they are truths you will live by as the journey proceeds. Conviction is the compass that will guide your journey.

Of course in the nature of things, life cannot simply be a series of successes. You will inevitably be knocked down from time to time and must be able to bounce back and keep going.

Despite Africa’s problems, I believe that Africa’s rebirth is real and sustainable. We should not lose hope, as Mandela reminds us. “It always seems impossible until it is done.” So go towards the river called life, taking heed to the Ashanti proverb that warns us “no man tests the depth of the river with both feet.” So, test it with your foot, and then, guided by the conviction that you are vital to Africa’s development and your own success, begin your journey across by jumping in with both feet.

I wish you a safe and fulfilling passage as you continue on your journey through life. Ask yourself now, today, tomorrow, and everyday—what is the meaning of my life? Why was I put on this earth, on this continent? At this time? With these skills? The answer is always the same, clear and simple: it is to serve others without regard to class, race, gender, or ethnicity.

Thank you and good luck to all of you.
Congratulations to our Graduates!
Elizabeth Agyeman-Budu, City and Regional Planning
Yafar Baikpeh, Law
Kukunda Stella Kakagina, International Development
Tongai Makoni, Cornell Institute for Public Affairs
Cynthia Matare, Nutritional Science
Samwel Ndungu, Law
Angela Siele, Global Development