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**Council for Trade-Related Aspects of  
Intellectual Property Rights**

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**REPORT ON THE IMPLEMENTATION OF ARTICLE 66.2  
OF THE TRIPS AGREEMENT**

UNITED STATES OF AMERICA

*Addendum*

The following communication, dated 23 October 2014, from the delegation of the United States is being circulated pursuant to paragraph 1 of the Decision on Implementation of Article 66.2 of the TRIPS Agreement (IP/C/28).

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**1 INTRODUCTION**

1.1. The United States is committed to continually enhancing its activities pursuant to Article 66.2 of the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS Agreement), and reporting these activities, in keeping with the guidelines established in the TRIPS Council's Decision of 20 February 2003 (IP/C/28). Consistent with this decision, developed country Members are to provide yearly reports of technology transfer to "least developed country" (LDCs) Members.

1.2. The intellectual property (IP), trade capacity, training, development assistance, financing, and infrastructure-related programmes described in this report are integral elements of the United States Government's efforts to help LDCs create the conditions essential to encourage the effective, voluntary transfer of technology to LDC Members. No report can describe every activity of the US Government that directly or indirectly promotes and encourages technology transfer, but this report attempts to describe the most significant activities and programmes.

1.3. The United States Government spends about US\$40 billion<sup>1</sup> annually on research conducted by federally operated laboratories, as well as by federally funded research and development (R&D) centres (FFRDCs). Much of that research results in inventions or findings that contribute to the development of new technologies and processes. Commercialization of these outputs can yield economic and social benefits that increase returns on the investment in federal research and development.

1.4. On the multilateral level, the United States contributes to global technology transfer institutions such as the United Nations Framework Convention on Climate Change's (UNFCCC's) Technology Executive Committee and Climate Technology Center and Network. As an active member of both bodies of the Technology Mechanism (TEC and the CTCN) the US played a leadership role in shaping the products and services of both bodies. The TEC over this past year developed and distributed several important TEC Briefs which provided Parties important information on how to accelerate their technology transfer processes and enhance the necessary technology development institutions. As the Chair of the CTCN Advisory Board, the US led the Board in designing and approving the seminal procedures and processes for the CTCN to provide specific technical assistance support to developing countries.

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<sup>1</sup> <http://www.nsf.gov/statistics/nsf13326/pdf/tab10.pdf>

1.5. The United States continues to believe that the effective functioning of the TRIPS Agreement's Article 66.2 requires a robust dialogue between developed and LDC Members in order to target incentives in a way that is most responsive to the self-identified technology transfer interests and needs of LDC Members. The United States appreciates the efforts of the TRIPS Council Secretariat and Member states to organize discussions among the Member states regarding Article 66.2 implementation.

## **2 GENERAL TECHNOLOGY TRANSFER PROGRAMMES AND PARTNERSHIPS**

### **2.1 Federally-funded Labs and R&D**

2.1. Technology transfer is most effective when the technology is requested by an individual or company that will be using the technology. The Federal Laboratory Consortium for Technology Transfer (FLC) plays a key role in providing information about technologies that are available for licensing. FLC is a national network of federal laboratories that provides the forum to develop strategies and opportunities for linking laboratory mission technologies and expertise with the marketplace. Approximately 300 federal laboratories and centers are FLC members. The FLC promotes technical cooperation between the federal laboratories and large and small businesses as well as with academia, federal, state, and local government agencies. FLC collaborates with organizations that promote technical cooperation, and works to improve the effectiveness of technology transfer through training, recognition, awards and evaluation. Moreover, the FLC encourages technology transfer and, through its member laboratories, seeks partners around the world (see <http://www.federallabs.org/flc/available-technologies/>).

2.2. In October 2011, President Obama issued a memorandum to all US federal agencies that conduct research and development, directing them to take measures to improve their technology transfer programmes leading to commercialization. In response to this directive, each agency developed specific plans and goals to be implemented and tracked from 2013–2017. These initiatives are intended to streamline technology transfer and accelerate the pace of technology transfer. In addition to direct action by agencies, new interagency metrics were developed to better describe and demonstrate performance in this area (see <http://www.nist.gov/tpo/publications/agency-responses-presidential-memo.cfm>).

### **2.2 Science and Technology Agreements**

2.3. Recognizing the importance of international science, technology and innovation cooperation to economic growth and development, the United States fosters dialogue through bilateral and multilateral mechanisms. The United States utilizes Science and Technology (S&T) agreements to provide a framework for increased international collaboration by facilitating cooperation between US technical agencies and their foreign counterparts on topics such as public health, watershed management, agriculture, environment and biodiversity protection, biotechnology, earth sciences, marine science and the alternative energy. These agreements support S&T relationships that also strengthen our science and technology partners' science education systems, build institutional and human resource capacity and promote a deeper appreciation of the innovation ecosystem and its role in technology transfer/commercialization. For example, the United States supports programmes that highlight the importance of strengthening university/private sector linkages to commercialize research (see <http://www.state.gov/e/oes/stc/>).

### **2.3 Special Self-Help Programme**

2.4. The Special Self Help (SSH) programme has been a popular and successful tool for most African embassies for almost 50 years, serving as a key instrument for US principals to provide targeted, visible, small-scale US assistance to local communities. The SSH programme provides grant assistance to a variety of community-based activities in response to community-identified needs, including significant small-scale construction projects. Through this programme, the United States supports the self-help endeavours of local communities as a whole. Annual funding levels for the programme have ranged from \$2 to \$3 million. Funds for FY 2013 were allocated across 44 African countries. In FY 2012, US \$1,535,000 in SSH funds were granted to projects in World Trade Organization (WTO) LDC Members, which increased in FY2013 to US \$1,684,000. SSH activities include boreholes, water taps, water tanks, pump houses, wells, cisterns, latrines and showers, classrooms, libraries, shelters, hostels, orphan dormitories, food sheds and

warehouses, and health centres and clinics. These projects have improved the lives of over 20 million people (see <http://www.state.gov/p/af/pdpa/ssh/>).

#### **2.4. Partnership for Enhanced Engagement in Research (PEER)**

2.5. The Partnerships for Enhanced Engagement in Research (PEER) is a joint programme supported by the US Agency for International Development (USAID), National Science Foundation (NSF), and National Institutes for Health (NIH) that assists developing country scientists by providing opportunities to conduct research in collaboration with NSF-and-NIH-funded scientists on topics related to social and economic development issues such as health, climate change, agriculture, water, biodiversity conservation, and disaster mitigation. PEER awards are made directly to developing country institutions and build capacity and engage developing country researchers to address key global development challenges, while leveraging US scientific expertise and building long-term scientific relationships (see <http://sites.nationalacademies.org/pga/dsc/peerhealth/>).

### **3 INCENTIVES RELATED TO AGRICULTURAL DEVELOPMENT AND FOOD SECURITY AND FOOD SAFETY**

#### **3.1 Technology Transfer Reporting from the Department of Agriculture**

3.1. The US Department of Agriculture (USDA) pursues technology transfer programming through promotion research outcomes being adopted for public benefit. The science-based innovations from USDA intramural research programmes create new technologies, processes, products, and services that enhance productivity, efficiency, and global competitiveness. To facilitate technology transfer, USDA uses both contractual instruments such as Cooperative Research and Development Agreements (CRADA), invention licenses and material transfer agreements, and the public dissemination of research results and releases of improved plant germplasm. Because USDA's research mission is to transfer technologies for broad public use, USDA pursues patent protection and licensing only when a private sector partner is needed for effective technology transfer. Generally, this occurs when the complementary assets needed to manufacture, market and distribute a new technology can only be provided by a commercial partner that must protect its investment. The USDA annual report on technology transfer provides details about the mechanisms used for technology transfer and types of technologies transferred (see [http://www.ars.usda.gov/sp2UserFiles/Place/01090000/FY13\\_TT%20Ann%20Rpt%20.pdf](http://www.ars.usda.gov/sp2UserFiles/Place/01090000/FY13_TT%20Ann%20Rpt%20.pdf)).

3.2. By sharing knowledge and technology through close collaboration with national and international research institutions to increase institutional research capacity and speed technology development, USDA's Agricultural Research Service (ARS) transfers technology and enhances international trade and diplomacy (see <http://www.ars.usda.gov/research/projects.htm?slimetype=International>). In addition, ARS is engaged in research specifically targeting developing countries through the Feed the Future webpage (see <http://www.ars.usda.gov/Research/docs.htm?docid=22832>) and other programmes in partnership with USAID and others.

#### **3.2 US National Plant Germplasm System**

3.3. All countries rely heavily on production of non-indigenous crops to meet food needs. This interdependence highlights the need for cooperation in conservation and exchange and use of plant genetic resources that support agricultural production everywhere. It is increasingly important that countries cooperate to enable world food production to meet the needs of future generations. The US Government has been actively involved in the collection and preservation of plant germplasm since the early 1800s (see [http://www.fao.org/fileadmin/templates/agphome/documents/PGR/SoW2/country\\_reports/americas/US.pdf](http://www.fao.org/fileadmin/templates/agphome/documents/PGR/SoW2/country_reports/americas/US.pdf)).

3.4. Today, the ARS National Plant Germplasm System (NPGS) has the primary federal responsibility for the preservation of germplasm collections of crop plants and their wild relatives. As countries are interdependent in their need for plant genetic resources, NPGS supports capacity-building for genetic resource conservation globally. Through global contributions and individual support to specific countries, the NPGS has pursued partnerships with international groups like

Biodiversity International and the Global Crop Diversity Trust. NPGS's partnership programmes have developed a new germplasm information management system, GRIN-Global, which will become the global standard for safeguarding, managing and publishing this invaluable information (see <http://www.grin-global.org>). NPGS is conducts trainings and workshops and continually produces reference materials on GRIN-Global. The software is freely available and can operate on any of four database platforms, all of which have versions that do not require licensing fees (see <http://www.ars-grin.gov/npgs/>).

3.5. There is great demand for germplasm from the NPGS. Although germplasm is used extensively for cultivar improvement, it is also used for a wide variety of other scientific studies, which contribute to improvements in crop production. The NPGS distributed an average of more than 191,954 accessions annually (from 2003 – 2013). Approximately 70% of the accessions were distributed to US scientists and 30 % to foreign scientists. Scientists in 140 countries received germplasm, including LDCs Afghanistan, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Eritrea, Ethiopia, Haiti, Lesotho, Madagascar, Mali, Myanmar, Niger, Rwanda, Senegal, Sierra Leone, Sudan, Tanzania, Uganda and Zambia. In one major success story, in 2012 over 2,400 samples of accessions originally collected in Ethiopia were repatriated to the national genebank at the Institute of Biodiversity Conservation. In 2013, 80 accessions of *Amaranthus* were distributed to a University researcher in Benin in support of the breeding programme for adaptable crops.

3.6. In recent years, the US Government has provided funds for many additional projects on germplasm conservation and utilization. NPGS scientists have collaborated with USDA's Foreign Agricultural Service and the ARS Office of International Research Programmes. In Bangladesh, scientists at the Bangladesh Agricultural University, with the technical cooperation of NPGS scientists, collected, evaluated, preserved and distributed germplasm of landraces and wild relatives of traditional fruits and vegetables. NPGS personnel promote technology transfer by provided training in all aspects of germplasm maintenance, evaluation, documentation, and enhancement to scientists worldwide.

### 3.3 National Science Foundation

3.7. NSF supports basic research to build a foundation for generating sustainable, science based solutions to agricultural problems in developing countries. The programme has awarded 24 grants through the Basic Research to Enable Agricultural Development (BREAD) programme. The programme, in partnership with the Gates Foundation, awards grants to promote novel, creative approaches and technologies to address common constraints faced by small-holder farmers. For example, among the grants is one to an international partnership of universities and research organizations that has developed a novel approach using genetic suppressors to develop new lines of wheat that are resistant to rusts, fungal pathogens that cause some of the most devastating disease in wheat (see <http://www.nsf.gov/bio/pubs/awards/bread10.htm>).

3.8. The BREAD Programme took a novel approach to fulfilling its goals by using a two-stage process involving small cash prizes articulating novel or under-studied scientific challenges facing smallholder farmers in the developing world and Early Concept Grants for Exploratory Research proposals to explore new, high-risk/high-payoff research stimulated by the prize-winning ideas. From among hundreds of submissions from researchers at all academic levels from around the world, 13 individuals were selected to receive a \$10,000 cash prize for their entries that are showcased on the BREAD Ideas Challenge website (see <http://www.nsf.gov/bio/bread/>). Winning challenges include calls to create new breeds of indigenous root crops, to help reduce farmer dependence on expensive fertilizers by creating a nitrogen-fixing organelle in small-holder crops, and to create alternatives to the use of costly liquid nitrogen in the livestock artificial insemination process (see [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503285&org=BIO](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503285&org=BIO)).

### 3.4 Feed the Future

3.9. USAID's Feed the Future (FTF) programme is the primary US global hunger and food security initiative, and supports country-driven approaches to address the root causes of hunger and poverty. Through this Presidential Initiative, the United States is helping countries transform their own agricultural sectors to grow enough food sustainably to feed their people. As a result, valuable food aid can be used for unforeseen catastrophes rather than for chronic food insecurity or predictable cycles of drought or flooding. Under USAID, experts in research, nutrition, and the

private sector have been brought together to guide and coordinate the Agency's efforts around food security (see <http://www.feedthefuture.gov/>).

3.10. President Obama has committed to advance agricultural development and food availability over three years to leverage and to align more than US\$18.5 billion from other donors in support of a common approach to food security. USAID seeks to advance global food security by comprehensively addressing the underlying causes of hunger and under-nutrition; investing in country-led plans; strengthening strategic coordination; leveraging the expertise of multilateral institutions; and making sustained and accountable commitments. FTF catalyzes technology transfer through agricultural-led economic growth and development by: bridging the gap between innovative agricultural productivity solutions and sustainable market demand; improving the enabling environment for market led growth; and linking large commercial institutions with smallholder partners. USAID is working in collaboration with its partners on innovative co-investment models, private sector partnerships, reducing risk, improving the enabling environment, commercialization of new technologies, and capacity-building. In providing technical assistance, USAID also seeks to expand markets and trade in LDC countries and FTF focus countries by: expanding market information; post-harvest market infrastructure; and access to business development and financial services. Moreover, the FTF's technical assistance will enhance animal, plant, and food safety by: improving standards and creating strong regulatory frameworks; reducing the time and cost of border movement of goods; and creating an enabling environment for agribusiness growth.

3.11. A central feature of FTF is a commitment to harness science and technology to advance agricultural productivity and sustainability goals. Research investments address five major programme areas of the Food Security Innovation Center: (1) Climate Resilient Cereals; (2) Legume Productivity; (3) Advanced Approaches to Pest & Disease; (4) Nutritious & Safe Foods; and (5) Sustainable Intensification. These research programmes involve collaborations between scientists in US and partner countries. Research collaborations are developing relevant technologies and solutions to improve agricultural productivity, profitability and sustainability for smallholder producers, with particular attention to developing technologies available, accessible, and relevant to both women and men farmers.

3.12. USAID funds 24 research programmes based at US universities across all five programme areas of the Feed the Future Food Security Innovation Centre. These programmes involve collaborations between US university scientists and host country scientists to develop relevant technologies and approaches to improving sustainability, productivity and profitability of smallholder farms. The programmes pursue research in aquaculture, livestock, cereals, legumes, food safety, nutrition, and natural resources management (see <http://feedthefuture.gov/article/feed-future-food-security-innovation-center>).

3.13. The Feed the Future Innovation Lab for Rift Valley Fever Control in Agriculture is a collaboration between the Universities of Texas at El Paso and Texas Medical Branch (Galveston, Texas) with Sokoine University of Agriculture in Tanzania. The goal is to develop a vaccine for livestock against Rift Valley Fever, which can provide life-long immunity and be delivered through a needle free device. The RVF virus infects humans and livestock in Kenya, Tanzania, and Somalia. Significant economic losses occur from Rift Valley Fever due to death and abortion among RVF-infected livestock.

3.14. The Feed the Future Innovation Lab for Genomics to Improve Poultry is a collaboration between the University of California (Davis), Iowa State University, and the University of Delaware, with Sokoine University of Agriculture in Tanzania and the University of Ghana. The goal is to apply advanced genetics and genomics approaches to sustainably enhance innate resistance to Newcastle Disease and heat stress in chickens to improve production. Newcastle Disease is a contagious bird disease affecting domestic and wild avian species as well as humans. Newcastle Disease is endemic to many countries and domestic poultry are highly susceptible creating the potential for severe impacts on poultry production worldwide.

### **3.5 Consultative Group on International Agricultural Research**

3.15. USAID's Consultative Group on International Agricultural Research (CGIAR), is a global research-for-development partnership consisting of an international agricultural and natural

resources research centre. CGIAR aims to reduce poverty and hunger, improve human health and nutrition, and enhance ecosystem resilience through high-quality international agricultural research, partnership and leadership (see <http://www.cgiarfund.org/node/393>).

### 3.6 Support for Biotechnology

3.16. Agricultural biotechnology offers an important tool to enhance crops and manage resources. This increases the incomes of small-scale agricultural producers in an environmentally sustainable way by:

- Reducing pesticide use and excess fertilizer use that pose threats to biodiversity and human health;
- battling damaging plant diseases and pests by developing new resistant crop varieties;
- making widely grown food crops more resilient and stress tolerant, thereby helping farmers adapt to a changing climate;
- enhancing the nutritional quality of key staple crops to counter malnutrition and improve the health of farmers and consumers; and enabling better livestock disease diagnosis and the development of more effective livestock vaccines.

3.17. USAID has taken an innovative approach to biotechnology, integrating technological development with policy reforms in developing countries. This integrated approach ensures that countries safely access biotechnology, and that a broader range of technologies are available for small-scale farmers. This is accomplished by jointly building technical capacity in crop research and development through biotechnology and making sure decision-makers have the resources to make informed decisions about biotechnology and biosafety.

3.18. Through USAID's programmes, developing countries build the capacity to develop crops. The programmes engage US and developing country experts from universities, the private sector, nongovernmental organizations, and international institutions such as the CGIAR, to form an integrated strategy for developing and managing biotechnologies.

3.19. USAID's biotechnology goals include:

- Developing new crops for smallholder farmers to improve the availability of food and strengthen livelihoods;
- developing and strengthening biosafety systems;
- increasing developing countries' capacity for local technology development;
- increasing public understanding of biotechnology and biosafety;
- helping public research systems address regulatory and IPR issues; and
- supporting research to inform biotechnology risk assessment and management.

### 3.7 Biotechnology Outreach

3.20. Technology transfer in biotechnology requires the development and implementation of science-based regulatory systems to enable LDCs to utilize products of the technology. In support of USAID's work in building capacity for legislative frameworks and regulatory systems, and in coordination with the USDA Foreign Agricultural Service (FAS), the State Department's Economic and Business Affairs Bureau works directly with other countries and with international bodies, like the WTO and Organization for Asia-Pacific Economic Cooperation (APEC), to ensure policies will be science-based and transparent, creating the necessary environment for LDCs and the private sector to make use of the technology. Funds have supported outreach programmes in many LDCs.

### 3.8 Program for Biosafety Systems

3.21. USAID's Program for Biosafety Systems (PBS) supports the development and implementation of national biosafety systems in Africa and Asia. PBS addresses biosafety through an integrated programme of research, capacity development, and outreach (see <http://www.usaid.gov/kenya/fact-sheets/program-biosafety-systems>).

### 3.9 South Asia Biosafety Program

3.22. The South Asia Biosafety Program is dedicated to assisting the Governments of Bangladesh, India and Pakistan in institutional governance of biotechnology. The programme builds on existing efforts to advise governments on enhancing and streamlining systems to realize the benefits of agricultural biotechnology within a transparent, efficient and responsive regulatory framework that ensures the safety of new foods and animal feeds and protects the environment.

### 3.10 Agricultural Biotechnology Support Program II

3.23. The Agricultural Biotechnology Support Program II (ABSP II), a USAID-funded consortium of public and private sector institutions managed by Cornell University, focuses on the safe and effective development and commercialization of bioengineered crops as a complement to traditional and organic agricultural approaches. Current ABSP II partners include India, Bangladesh, the Philippines, Indonesia and Uganda (see <http://www.absp2.cornell.edu/>).

### 3.11 African Agricultural Technology Foundation

3.24. The African Agricultural Technology Foundation (AATF) facilitates public-private partnerships to facilitate access to innovative technologies and to ensure the delivery of biotechnology through the local private and public sectors. Through USAID support, AATF's management of these linkages upstream and downstream of public sector research has established international public-private partnerships to develop insect-resistant cowpea, nitrogen-use efficient rice varieties, and drought tolerant maize using modern biotechnology. AATF works in several LDC members of the WTO, including Burkina Faso, Malawi, Mozambique, and Uganda, Tanzania,

### 3.12 Virus Resistant Cassava for Africa

3.25. The Virus Resistant Cassava for Africa (VIRCA) project aims to develop improved cassava varieties that contribute more food and income to farm families in East Africa. The project is focused on developing cassava varieties that are preferred by farmers and resistant to two common and prevalent viruses – cassava brown streak disease and cassava mosaic disease. Current VIRCA partner countries include Kenya and Uganda (see [http://pdf.usaid.gov/pdf\\_docs/pdacp868.pdf](http://pdf.usaid.gov/pdf_docs/pdacp868.pdf)).

## 4 INCENTIVES RELATED TO EDUCATION AND UNIVERSITY-LED TECHNOLOGY TRANSFER

### 4.1 Higher Education Solutions Network

4.1. USAID's Higher Education Solutions Network (HESN) is a constellation of seven Development Laboratories that harness the intellectual power of great American and international academic institutions and that catalyse the development and application of new science, technology, and engineering approaches and tools to solve some of the world's most challenging development problems. The Laboratories focus on challenges in areas such as global health, food security and chronic conflict. The HESN's goals are to:

- Improve the understanding of development problems and solutions through better data and analytics;
- test, evaluate, and catalyse technologies for development;
- design, create, and incubate revolutionary approaches in addressing development problems, including the incubation of new low-cost technologies and innovations;
- promote entrepreneurship to sustain and scale these tools and approaches; and
- harness the enthusiasm and interest of students for development (see <http://www.usaid.gov/hesn>).

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## 4.2. Technology Transfer through University Programmes and Student Exchanges

4.2. A major avenue for technology transfer from the United States is through the US university system, where foreign students are educated and then bring that training to private and public employment in their home countries.

4.3. Since US universities are largely established as not-for-profit (tax-exempt) entities, the education they provide is subsidized by the US taxpayer through tax revenues. The private endowments that enable foreign students to attend US universities on financial aid were built with tax exempt donations.

4.4. In 2013, there were 28,418 international students enrolled in US institutions of higher education, representing an increase of 8% over 2012 and 4% of the total US higher education enrolment. Many of the foreign students gravitate to the same US universities, where the portion of foreign students may reach 20% or higher. The three states with the most international students are New York, Texas and California, which host 32% of total foreign students. The University of Southern California hosts the largest number of international students, followed by University of Illinois at Urbana-Champaign, Purdue University, New York University, and Columbia University. The top three countries of origin for foreign students in the United States remained China (235,597 students), India (96,754) and South Korea (70,627), but India and Korea declined 3.5% and 2.3% respectively from their previous levels. The LDC with the most students enrolled in US institutions of higher education in 2013 remained Nepal with 8,920 students, followed by Bangladesh with 3,828 students.

4.5. The top five most popular fields of study for international students in the United States in 2012/2013 were Business and Management (21.8% of total); Engineering (18.5%); Mathematics and Computer Science (9.3%); Social Sciences (8.7%); and, Physical and Life Sciences (8.6%). The top five most popular fields of study for international students in the United States in 2012/2013 were: Business and Management (21.8 of total); Engineering (18.8%); Mathematics and Computer Science (9.5%); Social Sciences (8.9%); and, Physical and Life Sciences (8.8%).

4.6. Some foreign students at US universities enter the United States as non-immigrant exchange visitors ("J-1") which make such students ineligible to remain in the United States after completing their studies. This law applies to all students participating in programmes sponsored and/or funded by the US Government or for nationals of certain countries based on an established exchange visitor skills list (for example, through the US Fulbright Programme). In these cases, the J-1 visa requires that students spend 24 months outside the United States before they can be issued a permanent residence or a work visa to the United States, although travel to the United States for temporary business or tourism is acceptable. Foreign students subject to this requirement may also apply for a waiver if there is no objection from the foreign government, direct interest from a US Government agency, or if the visa holder is subject to persecution in his or her home country or usual foreign residence. Participating students through such programmes generally return to their home countries after completing their studies, thereby bringing such knowledge and training back as well.

4.7. Common practices that encourage technology transfer from US universities are:

- Publication of research results in the open academic literature that is accessible globally through the Internet, and utilized by scientists, engineers, and researchers in all sectors;
- interaction between creators and users of new knowledge (e.g. through professional meetings, conferences, seminars, industrial liaison programmes and other venues);
- collaborative research projects;
- entrepreneurial activity of faculty and students outside the university without involving university-owned intellectual property; and
- licensing of intellectual property to established firms and new start-up companies.

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## 5 INCENTIVES RELATED TO ENERGY DEVELOPMENT

### 5.1 Power Africa

5.1. Power Africa, a US Presidential Initiative to double access to power in sub-Saharan Africa, has supported the transfer of assets from the public to private sector. President Obama, through Power Africa has committed to providing seven billion dollars over the next five years to support six African countries. To date, private sector commitments under Power Africa total more than US\$20 billion. Power Africa will bridge the gap between Africa's power shortage and its economic potential by working with US, international and African partners to take the steps needed, from helping countries develop newly-discovered resources responsibly, to building out power generation and transmission and expanding the reach of mini-grid and off-grid solutions. The US Government is working closely with the African Development Bank, other multilateral organizations and other donors and investors to enhance the energy sector resources available to people in sub-Saharan Africa (see <http://www.usaid.gov/powerafrica>).

### 5.2 South Asia Regional Initiative for Energy

5.2. USAID's South Asia Regional Initiative for Energy Integration (SARI/EI) focuses on sharing best practices in cross border electricity trade (CBET) between private and public sector system and transmission operators in the US and South Asia. This programme will serve to improve the institutional capacity of South Asia to design and operate energy market mechanisms. The programme's objectives are to: draw upon international experiences in energy market development in North America to educate regional South Asian stakeholders; foster partnerships between system operators, electricity traders and regional transmission operators; and enhance institutional capacity of South Asian private and public sector system operators (see <http://www.sari-energy.org/>).

5.3. Through the programme, South Asian energy sector representatives will gain an understanding of the positive impacts that transparent energy markets and CBET can have on attracting additional investments and meeting energy needs. The programme facilitates exchanges among the South Asian countries to learn from the successful cross border energy trade in the region and provide a platform to discuss potential energy trade agreements. Exchanges will also explore harmonization of economic and regulatory aspects for electricity at national and regional levels. Participants gain perspective from the history, organizational structure, planning, standards, operations, tariffs, products, energy trading strategies, regulation and monitoring of regional power pools.

5.4. As increasing amounts of variable renewable generation, such as solar and wind energy, are integrated into the power grid, new technologies are needed. As wind and solar generation become more widespread throughout electric energy systems, an increasing level of flexible backup power will also be needed to increase energy security and reliability. SARI/EI supports South Asian energy policymakers in integrating renewable energies and modernizing the electricity distribution grid.

### 5.3 Clean Technology Fund

5.5. The USAID-led Clean Technology Fund (CTF) is a multilateral, multi-billion dollar effort to reduce greenhouse gas emissions in developing countries by helping to finance the additional costs of cleaner technologies over conventional alternatives. CTF provides financial incentives for cleaner projects that leverage development bank financing and attract investor capital into low-carbon sectors. To receive funding, developing countries must develop national investment plans that stimulate low-carbon growth and the scalable uptake of clean technologies. The United States is also a contributor to the Strategic Climate Fund (SCF), its Forest Investment Program (FIP), the Pilot Programme for Climate Resilience (PPCR), and the Program for Scaling-Up Renewable Energy in Low Income Countries (SREP). The FIP supports efforts to reduce deforestation and forest degradation and promote sustainable forest management that leads to emissions reductions and enhancement of forest carbon stocks (REDD+) in eight countries. The SREP focuses on deploying renewable energy to increase energy access in Armenia, Ethiopia, Honduras, Kenya, Liberia, Maldives, Mali, Nepal, the Solomon Islands and Tanzania and will begin engaging with 14

additional countries. The PPCR is assisting 18 countries, including Small island States and other countries vulnerable to changing climatic conditions.

#### **5.4 Private Financing Advisory Network**

5.6. Initiated by the Climate Technology Initiative (CTI) and supported by USAID, the Private Financing Advisory Network (CTI-PFAN) is a multilateral public-private partnership that nurtures promising, innovative clean and renewable energy projects by bridging the gap between investors and clean energy entrepreneurs and project developers. CTI-PFAN brings together private sector companies with experience in financing climate-friendly projects and technologies to screen business plans and select the most economically viable and environmentally beneficial projects. For those entrepreneurs and businesses selected, CTI-PFAN provides guidance on feasibility, project structure, investment and financing, business plan preparation, and introductions to investors. CTI-PFAN works through regional networks in Latin America, Asia, Eastern Europe, and Africa and through dedicated in-country networks in numerous countries (see <http://www.cti-pfan.net/>).

#### **5.5 Readiness for Investment in Sustainable Energy (RISE) index**

5.7. USAID is partnering with the World Bank to develop a new investment index for sustainable energy technologies, the Readiness for Investment in Sustainable Energy (RISE) index. RISE's goal is to provide information to the public and private sectors on the various national-level barriers and opportunities to low carbon technology deployment and investment and on country performance in terms of the market conditions, policies, institutions, laws, and regulations that contribute to an enabling environment for private investment. RISE will build on existing measures, such as the World Bank's "Doing Business Index," while identifying sector-specific barriers and incentives. RISE will also guide donors and developing country governments towards concrete measures for improving the enabling environment for private sector investments in clean technologies. RISE has been initially piloted in 17 countries and will be extended to include global coverage in future years (see <http://rise.worldbank.org/>).

#### **5.6 Climate Change-Related Technology Transfer per the Copenhagen Accords**

5.8. Since 2009, the United States has engaged in a wide range of activities with developing countries, with the primary goal of promoting the development and deployment of climate-friendly technologies and practices. The United States promotes its technology development and transfer activities bilaterally, plurilaterally, and multilaterally. At all levels of activity, the principal US focus is to help support the development of the policies and regulations and overall institutional scaffolding that is required to facilitate technology transfer actions. For example, the United States works bilaterally on capacity-building activities on appliance efficiency standards, renewable energy policies, and smart-grid regulatory schemes. Plurilaterally, the United States works with other countries on regional initiatives to transform market structures that will expedite the technology flows. Finally, on the multilateral level, the United States contributes to such global technology transfer institutions as the UN Framework Convention on Climate Change's (UNFCCC) Technology Executive Committee and Climate Technology Center and Network. In FY2013, the multilateral, bilateral and regional contributions related to the implementation of the UNFCCC was \$2.7 Billion.

5.9. The United States Climate Action Report 2014 (CAR), which includes the First Biennial Report of the United States of American and the Sixth National Communication of the United States of America under the UN Framework Convention on Climate Change, provides an exhaustive analysis of the support the United States provides for climate change mitigation and adaptation in developing countries. In particular, Chapter 7 of the CAR focuses on Financial Resources and Transfer of Technology, available at (see <http://www.state.gov/e/oes/rls/rpts/car6/>).

## **6 INCENTIVES RELATED TO THE ENVIRONMENT**

### **6.1 Forestry Resource Management**

6.1. The US Forest Service (USFS) and the International Union of Forest Research Organizations (IUFRO) signed a partnership agreement in July 2014, with the objective to enhance the

contribution of forest science to international forest-related policy processes and implementation of sustainable forest resource management, particularly in economically disadvantaged countries. The agreement achieves technology transfer through strengthening national forest research systems in Africa, Asia and Latin America, particularly through capacity development, scientist assistance and institution-building. Further, the initiative supports IUFRO's global initiatives on mobilizing and disseminating forest-related information through modern Internet-based information and communication technologies (see <http://www.fs.fed.us/research/partnerships/>).

## 6.2 Supporting the Forest Science Community in Developing Countries

6.2. IUFRO has a long history in providing support to the forest science community in Africa, Asia and Latin America. IUFRO implements capacity-building activities through its Special Program for Development of Capacity (IUFRO-SPDC). These activities strengthen research programmes and enhance development and implementation of sound forest management policies and practices through the generation and dissemination of quality-research results on forests and trees. IUFRO-SPDC's capacity-building activities concentrate on assisting forest research institutions in partner developing countries to effectively contribute to shaping national and local forest policies and sustainable forest management systems (see <http://www.iufro.org/science/special/spdc/>). The activities to be financed from the USFS allocation in 2015 focus primarily on Africa and South America, and the SPDC will bring 100 scientists from partner countries to a training session. The IUFRO XXIV World Congress will bring 2500 researchers from 100 countries (see <http://iufro2014.com/>).

6.3. The European Commission-EcoAdapt Project, "Ecosystem-Based Strategies and Innovations in Water Governance – Networks for Adaptation to Climate Change in Latin American Landscapes," (2012-2014) is a capacity-building programme for interdisciplinary action research on adaptation of forests to climate change focusing on water resource management. Partners in the project include IUFRO works with programme partners – including Centro Agronómico Tropical de Investigación y Enseñanza, Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Stockholm Environment Institute – Oxford, and other local Latin American organizations – to contribute to workshops with scientists and local stakeholders (see <http://www.iufro.org/science/special/spdc/actproj/ecoad/>).

## 6.3 Supporting Information Services and Knowledge Dissemination

6.4. The United States supports the provision of information services to scientists and policymakers in developing countries through the Global Forest Information Service (GFIS). GFIS provides a framework for sharing forest-related data and information through a single gateway. It promotes the dissemination and sharing of forest information and knowledge among the global forestry community by developing a common information exchange platform, building capacity and enhancing partnerships among forestry information providers and users (see <http://www.gfis.net>).

6.5. The Forestry Research Network for Sub-Saharan Africa (FORNESSA), and IUFRO, have established an online Information Service (FORNIS) as a gateway for African scientists to showcase their contributions towards achieving global objectives on forests. The information service supports information and knowledge-sharing and facilitates the flow of scientific information amongst researchers, research institutions, policymakers, and forest industry and forest communities. Based on the promising results of the first phase of FORNIS, 2011, 2012, 2013 and 2014 activities contributed to the enhancement of the FORNIS system, including partnership and website development. FORNIS contributes to the adoption of the Post-2015 Sustainable Development Goals, which will be discussed at the September 2015 IUFRO World Congress in Durban, South Africa (see <http://www.fornis.net>).

6.6. While many forestry professionals rely on the GFIS Internet gateway to access key resources, GFIS aims to expand its education index to provide students with the latest resources and information. The US Forest Service allocation contributes to the efforts of IUFRO towards improving the quality, relevance, and, accessibility of available forestry education information in collaboration with the International Partnership for Forestry Education.

6.7. The IUFRO Strategy (2010-2014) emphasizes the need to increase the visibility of science-based research findings by enhancing communication within IUFRO, with other scientists and

students, and with stakeholders and the general public. In order to respond to this need, a set of web-based communication and information tools and services addressing key issues and emerging themes will be developed on basis of the unique expertise of GFIS.

#### **6.4 Building Capacity on Greenhouse Gas Inventories**

6.8. USAID and the Environmental Protection Agency (EPA) build capacity for compiling national greenhouse gas (GHG) inventories to countries in Southeast Asia, Eastern and Southern Africa, Colombia, Peru and Bangladesh, in addition to continued development of national GHG inventory information management tools. The project focuses on developing long-term national inventory management systems, improving the methods and data used in the agriculture, forestry and other land use sectors (see <http://www.epa.gov/climatechange/EPAactivities/internationalpartnerships/capacity-building.html>).

6.9. EPA is continuing to enhance economic modeling capacity in Latin America and also improve representation in global models. EPA, USAID, and the European Union (EU) organized workshops in 2014 to share and review results from modeling exercises among Latin America modelers. At the workshops, participants presented and reviewed results from a common set of climate policy scenarios, to be presented at the UNFCCC Conference December 2014. The papers will discuss climate policy, the role of technology, agriculture and land-use, and macroeconomic effects. This work complements other EPA programmes that provided technical assessments of potential to assist Kenya on improving its National GHG Inventory.

#### **6.5 Global Alliance for Clean Cookstoves**

6.10. The Global Alliance for Clean Cookstoves is a public-private partnership led by the United Nations Foundation to save lives, improve livelihoods, empower women, and combat climate change by creating a thriving global market for clean and efficient household cooking solutions. The Alliance's 100-by-20 goal calls for 100 million homes to adopt clean and efficient stoves and fuels by 2020. Today the Alliance has nearly 1000 partners. The World Health Organization (WHO) estimates that over four million annual deaths are associated with exposure to cookstove smoke each year. These exposures rank as the fourth worst health risk in the world (see <http://www.state.gov/s/partnerships/cleancookstoves/>).

6.11. The United States has committed up to \$125 million to the Alliance over five years. Participating US agencies include the State Department, Environmental Protection Agency, USAID, Department of Energy, Department of Agriculture, Department of Health and Human Services, NIH, Centers for Disease Control and Prevention (CDC), Overseas Private Investment Corporation (OPIC), National Science Foundation (NSF), National Oceanic and Atmospheric Administration, and Peace Corps. The US Government has made a broad set of commitments to help the Alliance, which include leading diplomatic activities to advance the Alliance and the cookstoves sector; mobilizing financial resources towards research, financing, and on-the-ground activities; providing top-level US experts; and leveraging US investments with other donors, with an eye towards helping the Alliance achieve its 100-by-20 target.

#### **6.6 Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security**

6.12. USAID's Coral Triangle Initiative (CTI-CFF) on Coral Reefs, Fisheries, and Food Security is a partnership to sustain the Southeast Asia region's marine and coastal biological resources. The Coral Triangle (CT) region is shared within the waters of six countries: Indonesia, Malaysia, Papua New Guinea, the Philippines, Timor-Leste, and the Solomon Islands. Among these countries, one in three people (of a total 363 million) of the region rely upon coastal fisheries for their primary food security each day. To combat risks resulting from over-fishing land-based sources of pollution and climate change the United States pledged a over \$41 million to support the Coral Triangle countries. The programme provides technical assistance and helps build capacity to address food security, climate change, and conservation of marine biological diversity, upon which production fisheries and tourism depends. Altogether, US Government support totals more than \$60 million (see <http://www.coraltriangleinitiative.org/>).

6.13. Support from the US Government promotes the adoption of best practices in regional ocean governance and the management of coastal and marine ecosystems to ensure the long-term provision of the essential services to local people. Such best practices include strengthening institutions to sustain impact; harmonizing and implementing an ecosystem approaches to fisheries management; establishing a six-country system of marine protected areas and management effectiveness framework; and Region-wide Early Action Plan for Climate Change Adaptation. This support has significantly enhanced the policy, practice, and human capital to make scientifically informed decisions and also has helped advance the best practices to conserve natural ocean capital in the face of climate change and ocean change.

## **7 INCENTIVES RELATED TO HEALTH**

7.1. Biomedical and behavioral research funding activities of the NIH have contributed to technology transfer and research capacity-strengthening in many LDCs. For new technologies developed by scientists at the NIH and the Food and Drug Administration (FDA), the NIH licenses biological materials and associated patent rights, when applicable, to institutions that have the capability of bringing products to the market in or for LDCs. In addition, scientists often provide know-how to those receiving biological materials such as vaccine seed strains with specialized growth requirements. Most of these technologies are associated with diagnostic tests, treatment, vaccination, and prevention of pathogens such as dengue, rotavirus, Haemophilus Influenzae type b (Hib), human papillomavirus (HPV), typhoid bacteria, meningococcus, varicella-zoster and HIV. This technology transfer builds manufacturing capacity and associated skillsets by providing access to vaccines that meet public health needs (see <http://www.ott.nih.gov/licensing>).

### **7.1 HIV/AIDS Clinical Trials Networks and Research Sites**

7.2. The NIH-funded Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) Clinical Trials Networks and their Clinical Trial Units/Clinical Research Sites (CTU/CRS) pursues clinical trials to address the highest priorities in HIV/AIDS research, including: (a) vaccine R&D; (b) translational research/drug development; (c) optimization of clinical management, including co-morbidities such as tuberculosis (TB), hepatitis and cancer; (d) microbicides; (e) prevention of mother-to-child transmission of HIV; and (f) prevention of HIV infection. The networks' leadership groups and CTU/CRS are being recompeted by NIH and will be broader in scope with a new focus on research toward a cure for AIDS, TB and hepatitis. Under these programmes, collaborative basic and clinical research is carried out between researchers worldwide, including in Africa, Asia, Europe, South America, and the United States. These research and training programmes support the expansion of basic and clinical research skillsets in LDCs, the strengthening of infrastructures to support the development of new drugs and vaccines, and the exchange of scientific knowledge worldwide.

### **7.2 Multilateral Initiative on Malaria**

7.3. NIH and the WHO's Special Program for Training and Research in Tropical Diseases, co-founded the Multilateral Initiative on Malaria (MIM) focused on LDCs and other malaria-prevalent countries. MIM's mission is to increase and enhance worldwide research on malaria by facilitating multinational research cooperation. NIH has also established malaria research facilities in Mali and Uganda and has trained local scientists and physicians to conduct malaria research from within endemic countries, including those in several LDCs in Africa. NIH also has established an international network of centers of excellence for research focused on malaria endemic countries (see <http://www.ncbi.nlm.nih.gov/books/NBK3741/>).

### **7.3 NIH Infectious Disease Research Focus in Africa**

7.4. NIH supports and has funded research activities in 36 African countries, including the following WTO LDC Member countries: Benin, Burkina Faso, the Democratic Republic of the Congo, The Gambia, Malawi, Mali, Rwanda, Senegal, Tanzania, Uganda, and Zambia. These research activities contribute directly to the strengthening of research capacity in these countries, thereby enhancing prospects for further transfer of technology in the future.

7.5. HIV/AIDS, tuberculosis, and malaria cause millions of deaths each year. These three diseases are a major cause of poverty through their debilitating impact on the active workforce, and

significantly affect economic development and stability of the region. NIH's National Institute of Allergy and Infectious Diseases (NIAID) supports HIV/AIDS research in many African countries, with most projects conducted in areas with the highest incidence of infection and disease: Botswana, Kenya, Malawi, Rwanda, South Africa, Zambia, and Zimbabwe. The recent emergence of multidrug-resistant tuberculosis and extensively drug-resistant tuberculosis, especially in the context of HIV/AIDS infection, is being addressed by NIAID-funded projects conducted in South Africa, Tanzania and Uganda. Malaria remains a major threat, and NIAID conducts clinical, epidemiological, drug, and vaccine and vector research in Burkina Faso, Cameroon, The Gambia, Malawi, Mali, Senegal, Tanzania, and Uganda (see <http://www.niaid.nih.gov/topics/globalresearch/region/africa/Pages/default.aspx>).

7.6. Neglected diseases such as filariasis, schistosomiasis, sleeping sickness, and others are receiving support from NIAID in countries such as Kenya, Malawi, Mali, and Uganda. NIAID has a long-standing programme of research devoted to better understanding, treating, and preventing neglected tropical diseases (NTDs). NIAID conducts its own basic and clinical studies and supports those of researchers based in the United States and in countries where NTDs are widespread. NIH-supported research has helped with training in state-of-the-art research techniques and conducting clinical trials in Africa.

#### 7.4 NIH Research Training Programmes for Low-and-Middle-Income-Countries

7.7. NIH's Fogarty International Center supports several research training programmes that include training for low-and-middle-income-country (LMIC) biomedical researchers and research institutions and contribute to technology transfer and capacity building. Among these are the AIDS International Training and Research Program, the Global Infectious Disease Research Training Program, and the International Clinical, Operational, and Health Services Research and Training Award for AIDS and Tuberculosis, the Fogarty HIV Research Training Program and the Medical Education Partnership Initiative. These programmes involve researchers and medical personnel from LMIC countries (see: <http://www.fic.nih.gov/Programs/Pages/default.aspx>).

#### 7.5 Technology Licenses

7.8. The NIH was the first contributor to the Medicines Patent Pool (MPP) in licensing US Government-owned patents related to the use of HIV anti-retroviral (ARV) drugs. The MPP promises to enhance access to ARV treatment for people living with HIV/AIDS in developing countries and enable the development of new combinations of ARVs and adapted formulations for developing countries. The license is seen as a first step for an expected ongoing collaboration as NIH's Office of Technology Transfer and the MPP consider additional potential license agreements to add other NIH-managed patents to the pool for technologies that may have potential as new HIV therapeutics (see <http://www.whitehouse.gov/blog/2010/09/30/us-government-first-share-patents-with-medicines-patent-pool>).

7.9. In 2011, the NIH became a founding contributor and active participant in the World Intellectual Property Organization (WIPO) Research Initiative, established to share innovation in the fight against NTDs, as well as against malaria and tuberculosis, by providing access to intellectual property for pharmaceutical compounds, technologies, know-how and data available R&D for NTDs, malaria and tuberculosis. NIH contributed intellectual property from its internal research programmes for over 70 technologies. These technologies are made available for licensing to help in the development of diagnostics, vaccines, and therapeutics to improve public health in the LDCs. Through this initiative, the NIH has entered into two agreements, one with Emory University for "in-kind" support for dengue and rift valley fever viruses drug discovery, and a second with Infectious Disease Research Institute (IDRI), in which the NIH provides compounds for screening against tuberculosis (see [http://www.wipo.int/pressroom/en/articles/2011/article\\_0026.html](http://www.wipo.int/pressroom/en/articles/2011/article_0026.html)).

7.10. The NIH developed a model license term sheet for the transfer of technologies that can be developed to diagnose, treat or prevent NTDs, HIV, malaria, and tuberculosis by non-profit institutions, including non-governmental organizations and public development partnerships (PDPs). The NIH worked with PDPs and NGOs to develop the terms and ensure they were reasonable. In 2013, the NIH used this term sheet in license agreements with IDRI and the Programme for Appropriate Technology in Health (PATH). Both IDRI and PATH have established

successful histories of developing and bringing products to middle-and-low-income populations. The PATH license transferred technologies related to diagnostics for onchocerciasis, lymphatic filariasis, and loa loa infection. In the interest of global public health, the NIH broadened the scope of use for this term sheet by licensing influenza vaccine technology, an additional infectious agent, to IDRI.

7.11. The NIH continued to transfer human-bovine rotavirus technology to new institutions, licensing the technology to outside companies around the globe. NIH continued to expand its licensing programme in other agreements covering the human-bovine rotavirus technology, varicella zoster virus strain, rotavirus subunit vaccine technology, a conjugate vaccine technology for Haemophilus influenza type b, pertussis vaccine, dengue vaccine technology, rheumatoid arthritis, meningococcal vaccine, Human Papilloma Virus, chicken pox / shingles, typhoid, influenza, rabies, and technologies that improved bacterial expression of antibodies.

7.12. For many of these technologies, NIH works closely with companies across the globe to ensure drug delivery to areas of need. For example, the NIH has licensed biological materials to Shantha Biotechnics, Ltd. (India) for use in producing a Haemophilus influenza type b (Hib) vaccine. In addition to India, Shantha anticipates selling the Hib vaccines in developing world countries worldwide, including Africa, initially mostly through public tenders or tenders to the United Nations Children's Fund (UNICEF) and WHO. Shantha also licensed technologies and associated biological materials for the manufacture and distribution of a HPV vaccine worldwide, including countries eligible for support from the Global Alliance for Vaccines and Immunization (GAVI) Alliance. In addition to the Shantha HPV license, the NIH has non-exclusively licensed the same second-generation HPV vaccine technology to three companies for worldwide product distribution, including GAVI-eligible countries. These other companies are PaxVax, Sanofi Pasteur and GSK. The NIH will be able to continue to license this technology, which includes biological materials for vaccine manufacturing, to other interested parties.

7.13. In order to facilitate distribution of the HPV vaccine Gardasil® to underserved women in the developing world, the NIH reached an agreement with Merck (a licensee of the NIH's patent rights covering the vaccine) to incentivize the distribution of vaccine to these at-risk populations. The arrangement enables Merck to include Gardasil® broadly in its worldwide tiered-pricing strategy, including any donative or not-for-profit transfers to distribution networks, governments or directly to individuals in developing world nations. For this agreement, "developing world" nations are defined by the GAVI Alliance, which include many WTO LDC Members. In May 2013, Merck and GSK, which manufactures the HPV vaccine Cervarix®, announced that they had reached agreements with GAVI to supply their respective HPV vaccines at lower prices to developing countries.

## **8 INCENTIVES RELATED TO TRANSPORTATION**

### **8.1 US Department of Transportation**

8.1. The US Department of Transportation (DOT) plays an important role in maintaining the strong, interconnected global transportation system vital for economic growth in the United States and abroad. DOT is engaged in a wide range of activities designed to enhance the transportation capacity and infrastructure of LDCs (see <http://www.dot.gov/>).

### **8.2 Open Skies Agreements**

8.2. Open Skies Agreements between the United States and partner countries have vastly expanded international passenger and cargo flights to and from the United States, promoting increased travel, trade, and business contacts, enhancing productivity, and spurring high-quality job opportunities and economic growth. The increased travel, trade, and business contacts promoted by expanded air traffic facilitate private sector technology transfer. Open Skies Agreements eliminate government interference in the commercial decisions of air carriers about routes, capacity, and pricing, freeing carriers to provide more affordable, convenient, and efficient air service for consumers. The United States has achieved Open Skies with over 110 partners from every region of the world and at every level of economic development. Since 1999 the United States developed Open Skies agreements with 20 Least-Developed Countries: Sierra Leone, Tanzania, Burkina Faso, Gambia, Rwanda, Benin, Senegal, Uganda, Samoa, Madagascar, Maldives

(an LDC when the agreement was reached, but is no longer considered an LDC), Ethiopia, Mali, Chad, Liberia, Lao PDR, Zambia, Yemen, Bangladesh, and Equatorial Guinea (see <http://www.state.gov/e/eb/tra/ata/>).

### **8.3 Safe Skies for Africa Programme**

8.3. The Safe Skies for Africa Program (SSFA) is based on the premise that "Safe Skies" are a prerequisite for African economic development through increased trade and investment. The programme encourages private sector-led technology transfer by complementing air safety and security components with US Government-led efforts to conclude Open Skies agreements with partner African countries and promote code-share agreements between US and African airlines. Since 2008, the SSFA continued in its mission to promote sustainable improvements in aviation safety in Africa as a means of advancing economic development and increased investment to Africa. The overarching goal of the programme is to increase the number of African nations meeting International Civil Aviation Organization standards. Through the programme, the DOT has directly trained African experts with the Federal Aviation Administration, and, at times, in-country. These capacity-building efforts have resulted in hundreds of personnel receiving state-of-the-art training to address airworthiness, operations, air navigation, aviation security (in partnership with the Transportation Security Administration), as well as accident investigation processes and procedures (in partnership with the US National Transportation Safety Board).

## **9 TRADE AND INVESTMENT CAPACITY BUILDING AND INCENTIVES**

### **9.1 Bilateral Investment Treaties**

9.1. US Bilateral Investment Treaties (BITs) improve the climate for investment in the economies of partner countries by encouraging the adoption of policies that facilitate and support foreign investment. Technology transfers are primarily private sector decisions and should not be required as a pre-condition for investment. US BITs establish a framework of reciprocal protections that include nondiscriminatory treatment, free transfer of investment-related funds, protection against expropriation, limitations on specified performance requirements, transparency in governance, and investor-state dispute arbitration rights. These treaties improve the climate for foreign direct investment (FDI), in joint ventures, and in other forms of investment in partner countries that can lead to the transfer of technology and know-how. As of 2014, the United States had signed six BITs in Sub-Saharan Africa, four of which were with WTO LDC Members, including the Democratic Republic of the Congo, Senegal, Rwanda and Mozambique. In August 2009, a BIT negotiation between the United States and Mauritius was launched. In June 2012, the US and the East African Community (EAC) issued a joint statement on their Trade and Investment Partnership, which included a statement that the governments have agreed to explore a regional investment treaty. As of September 2013, the United States has entered into exploratory talks regarding a BIT with Gabon and Ghana (see <http://www.ustr.gov/trade-agreements/bilateral-investment-treaties>).

### **9.2 Trade and Investment Framework Agreements**

9.2. US Trade and Investment Framework Agreements (TIFAs) help enhance trade and investment relations between the United States and trade and investment partners. Over the last several years, the United States has launched 13 trade and investment agreements in sub-Saharan Africa – including three bilateral TIFAs with LDCs: Angola, Mozambique, and Rwanda. Additionally, the United States has launched regional TIFAs with the Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC), Economic Community of West African States (ECOWAS) and West African Economic and Monetary Union (UEMOA); and a Trade, Investment, and Development Cooperative Agreement with the five countries of the Southern African Customs Union (SACU). The United States also has bilateral agreements with several LDCs outside of sub-Saharan Africa including: Bangladesh, Burma, Cambodia, Nepal, and Yemen, as well as with the Caribbean Community (CARICOM) and the Association of Southeast Asian Nations (ASEAN). Together, these agreements cover 29 WTO LDC Members: Angola, Bangladesh, Benin, Burkina Faso, Burma, Burundi, Cambodia, Democratic Republic of the Congo, Djibouti, The Gambia, Guinea, Guinea Bissau, Haiti, Laos, Lesotho, Madagascar, Malawi, Mali, Mozambique, Nepal, Niger, Rwanda, Senegal, Sierra Leone, Tanzania, Togo, Uganda, Yemen, and Zambia (see <http://www.ustr.gov/trade-agreements/trade-investment-framework-agreements>).

### 9.3 The Generalized System of Preferences

9.3. In addition to AGOA, until August 2013, the Generalized System of Preferences (GSP) programme provided duty-free access to the US market for a wide range of products from 43 eligible LDC beneficiary countries (out of a total of 123 GSP beneficiary countries). Legal authorization of the GSP programme expired as of July 31, 2013. The US Administration is working with the United States Congress to reauthorize the programme (see <http://www.ustr.gov/trade-topics/trade-development/preference-programs/generalized-system-preference-gsp>).

### 9.4 African Growth and Opportunity Act

9.4. The African Growth and Opportunity Act (AGOA), enacted in 2000, has been at the center of US trade and investment policy toward sub-Saharan Africa, which has sought to promote open markets, expand US-Africa trade and investment, stimulate economic growth, and facilitate sub-Saharan Africa's integration into the global economy. AGOA provides incentives to promote economic and political reform and trade expansion and builds on the US Generalized System of Preferences (GSP) programme to provide duty-free access for most of the products produced in eligible sub-Saharan African countries. The additional products include value-added agricultural and manufactured goods such as processed food products, apparel, and footwear. Since the enactment of AGOA in 2000, the United States has worked closely with African governments, the private sector, and civil society stakeholders to improve AGOA utilization and to help them make the most of AGOA's trade benefits. The US Government crafted and put into place the regulatory framework for AGOA, actively promoted the programme throughout Africa, and developed trade capacity-building programmes to help African governments and firms identify and develop the market opportunities available under AGOA. AGOA continues to support the efforts of sub-Saharan African countries undertaking economic, political, and social reforms and provides incentives for countries undertaking reforms (see <http://www.ustr.gov/trade-topics/trade-development/preference-programs/african-growth-and-opportunity-act-agoa>).

9.5. As of August 2014, 41 sub-Saharan African countries were eligible for AGOA benefits, including 22 WTO LDC Members. Helping AGOA beneficiary countries improve their capacity to trade and to make the most of the opportunities afforded under AGOA has been a major focus of US Technical Capacity Building (TCB) programmes. AGOA has resulted in a substantial increase in two-way US-Africa trade, with African countries now exporting a more diverse range of value-added products to the United States. Moreover, African economies have been using trade benefits generated by AGOA to grow their economies and reduce poverty. The five-year \$200 million African Global Competitiveness Initiative is a key element of TCB in support of AGOA. The AGCI supports the work of three USAID-managed regional Trade Hubs (located in Gaborone, Botswana, Nairobi, Kenya, and Accra, Ghana).

### 9.5 Trade Capacity Building in Least Developed Countries

9.6. "Aid for Trade" or Trade Capacity Building (TCB) assistance is a cornerstone of the US Government's strategy to promote economic growth through trade and to enable developing countries to negotiate and implement market-opening and reform-oriented trade agreements. TCB helps to improve the linkage between trade and development by providing developing countries the tools to maximize trade opportunities, including through fostering environments favorable to technology transfer. The United States considers its TCB activities to be an integral element in its efforts to provide incentives for technology transfer (see <http://www.usaid.gov/what-we-do/economic-growth-and-trade/trade-and-regulatory-reform/trade-capacity-buildingaid-trade>).

9.7. The United States obligated over \$216 million to TCB activities in LDCs in FY 2013. Cumulative US TCB to LDCs from FY 2001 to FY 2013 totaled over \$4.4 billion.

### 9.6 Overseas Private Investment Corporation

9.8. The Overseas Private Investment Corporation (OPIC) is the US Government's development finance institution, mobilizing private investment in more than 150 emerging markets around the globe. OPIC seeks to open up and expand new markets for American businesses, and new opportunities for the people of developing nations. Working with the private sector, OPIC helps US enterprises gain footholds in emerging markets, catalyzing revenues, jobs and growth

opportunities, both in the United States and abroad. OPIC actively partners with both private and public financial institutions, US and other government institutions, as well as other stakeholders.

9.9. OPIC has supported more than \$200 billion of investment in over 4,000 development projects in such key sectors as renewable and clean technologies, agribusiness, and small and medium-enterprise /micro-finance. The agency's current total portfolio exposure is \$18.0 billion as of September 30, 2013, of which 70% (\$12.7 billion) is in financing, 12 (\$2.2 billion) is in investment funds, and 17% (\$3.1 billion) is in insurance. Another key priority is Impact Investing, which aims to produce positive social impacts while generating financial returns sufficient to make these projects sustainable. OPIC also responds quickly to shifts in the political landscape. Recent events have led to increased commitments throughout the Middle East and North Africa. OPIC has also strengthened its focus on Southeast Asia, in addition to its longstanding emphasis on Sub-Saharan Africa.

9.10. In FY 2013, OPIC committed more than \$1.2 billion to the renewable energy sector, up almost \$200 million over the previous fiscal year. OPIC continues to make significant efforts to expand its work in Africa, resulting in \$640 million in new commitments to the region last year. In 2001, the sub-Saharan Africa region comprised only 4% of OPIC's global portfolio of loans, guarantees and political risk insurance, and by the end of FY 2013 comprised 21%. At its US-Africa Clean Energy Development and Finance Center (South Africa), OPIC provides technical and financial support for clean energy project development by providing the investors, as well as sub-Saharan African developers, with a centralized means to identify and access US Government support for their clean energy export and investment needs. OPIC also supports the African Clean Energy Financing (ACEF) programme, which is focused on catalyzing private sector investment in clean energy projects in Africa by providing support for early stage project development costs (see <http://www.opic.gov/sites/default/files/files/ACEF%20One-Pager%2005%2021%202013%20final.pdf>).

### **9.7 Millennium Challenge Corporation**

9.11. The Millennium Challenge Corporation (MCC) is a US Government corporation that provides development assistance designed to achieve poverty reduction through economic growth by investing in power, transport (road, water and air), water supply, sanitation, agriculture, banking and financial services, health, education and community services, and governance. Created in 2004, MCC has signed 28 compacts with 25 countries worth nearly \$10 billion (see <http://www.mcc.gov/>).

9.12. MCC is currently implementing compact agreements or threshold programmes with three WTO LDC Members: Malawi, Senegal, and Zambia. MCC has also completed programmes with Benin, Burkina Faso, Lesotho, Madagascar, Mali, Mozambique, Niger, Rwanda, Sao Tome and Principe, a LDC that is in the WTO accession process, Tanzania, and Vanuatu. New programmes are being developed with WTO LDCs Benin, Lesotho, Nepal, Niger, Sierra Leone, and Tanzania.

### **9.8 US Trade and Development Agency**

9.13. The US Trade and Development Agency (USTDA) advances US economic development initiatives in developing and middle income countries. USTDA funds technical assistance (e.g. early investment analysis, training, reverse trade missions, and business workshops) that support the development of modern infrastructure and a fair and open trading environment. USTDA is dedicated to promoting public-private partnerships and through grant funding assists partners in infrastructure development projects that support economic growth and effective transfer of technology to LDCs. Recognizing the importance of trade to LDC growth, USTDA works closely with other US Government agencies and regional economic communities to develop trade capacity and apply private sector solutions to development challenges worldwide. In 2014, USTDA provided over US\$1.2 million in assistance activities designed to create an enabling environment for increased trade and investment in LDCs.

9.14. USTDA has focused on helping Burma increase its trade capacity. Economic growth and further development in Burma is severely restricted by the lack of access to reliable electricity. In order to spur the development of new gas-fired power plants that would supply electricity to Burma, USTDA approved US\$294,760 in funding for a reverse trade mission (RTM) for the energy

sector focused on natural gas-fired power generation and related infrastructure in Burma. The RTM brings delegates from Burmese ministries and state-owned energy companies responsible for making decisions related to the advancement of the sector to the United States to learn about US technologies and services, along with regulatory and related environmental best practices for the energy sector. This RTM introduces delegates to new technologies and processes that have the ability to improve current operations at existing facilities and result in efficient operations at future plants.

9.15. USTDA has also focused programming in Tanzania. In June 2014, USTDA provided a grant in the amount of US\$600,000 to Tanzania's University of Dodoma for a feasibility study to determine the technical, economic, and financial viability of implementing a combined 55 megawatt solar photovoltaic project on the university campus in the Tanzanian capital city of Dodoma. The project would include phased construction of three photovoltaic power plants at sites located on the campus. Implementation of the project would provide significant economic benefits for the University, diversify Tanzania's energy mix, lower fossil fuel consumption, and reduce associated greenhouse gas emissions. The project would also increase access to power for the University and Tanzanians in the Dodoma region.

### **9.9 The Award for Corporate Excellence**

9.16. The Secretary of State's Award for Corporate Excellence (ACE) recognizes the important role US businesses play abroad as good corporate citizens, including promoting technology transfer and sustainable development. The ACE encourages US companies to enhance their efforts to engage in responsible business conduct through innovation, due diligence and supply chain management, support for human and labor rights, environmental stewardship and democratic values worldwide. The ACE winners for 2013 were: Fruit of the Loom in Honduras for its groundbreaking work on collective bargaining rights for its employees; Plantronics in Mexico for its work supporting Mexican S&T development; and Taylor Guitars in Cameroon for its work on environmentally and socially responsible sourcing, harvesting, and milling of rare ebony and improving transparency and traceability of logging permits among forest users (see <http://www.state.gov/e/eb/ace/>).

### **9.10 Private Sector-Led Technology Transfer**

9.17. US agency efforts to promote better trade and investment regimes have facilitated market-based, voluntary technology transfer from US private sector entities. As US programmes help LDCs create the conditions for the private sector to have the confidence to invest in LDCs, new technologies and knowledge are exported to LDCs, helping to develop local skills and knowledge. US industry has identified several conditions that must be present for private sector-led technology transfer, including effective intellectual property rights (IPR) protection, supportive local government programmes, political and economic stability, good regulatory standards, an educated local workforce, and robust market size and potential. For example, US pharmaceutical company Pfizer has recently entered into a partnership agreement with South Africa's North-West University to collaborate on preclinical research and development. The programme is financed by South Africa's Department of Science and Technology and is expected to assist Pfizer in its ability to access innovation in the local context while contributing enhancing South African health sector R&D capacity.

## **10 ECONOMIC POLICY AND DEVELOPMENT PROGRAMMES**

### **10.1 International Trade Administration**

10.1. The Department of Commerce's International Trade Administration (ITA) supports programmatic offices such as the Commercial Law Development Program (the technical assistance arm of the Department's Office of the General Counsel), and the US Patent and Trademark Office (USPTO), as well as other US Government agencies to deliver IPR technical assistance programmes to LDCs (see <http://www.trade.gov>).

10.2. As part of its strategy to empower businesses, particularly small businesses, to obtain and enforce IPRs, the US Department of Commerce utilizes multiple tools and means of assistance for companies operating abroad. Small businesses in the United States are often on the cutting edge of new technologies. However, such businesses may be hesitant to export products, make

investments or form partnerships overseas that involve their latest technology because of fears that their IPRs could be violated. The US Department of Commerce, by teaching small businesses how to protect and defend their rights overseas, promotes businesses to operate overseas, including in WTO Member LDCs.

10.3. The Department of Commerce continues to promote small business tools to other countries for their own private sector development. The Department of Commerce has developed a public website that hosts online resources, including information about key US Agencies and programmes (see <http://www.stopfakes.gov>).

10.4. The STOPfakes website also includes an IPR Training Module that the United States encourages LDC trade and IPR authorities to utilize as a means of promoting their domestic private sectors. The module familiarizes small businesses with IPRs, explaining its relevance to businesses and how to protect and enforce IPRs abroad. WTO Member LDCs and other countries are welcome to use this free, public resource. Finally, STOPfakes serves as a means for reporting IPR trade and enforcement issues to the Commerce Department and Federal enforcement authorities.

## 10.2 Commercial Law Development Program

10.5. The Commercial Law Development Program (CLDP) provides commercial law technical assistance to governments and private sectors of developing and transitional countries in support of their economic development goals. Its programmes are demand-driven and customized to address priority issues in doing business in those countries. CLDP's unique government-to-government approach helps improve legal and regulatory environments, which are essential to attract foreign investment and promote private sector growth. Strong IPR protection systems can help assure foreign companies that they can transfer technology without fear that it will be stolen, and can provide incentives for domestic innovation and foreign direct investment. In recent years, CLDP has conducted a number of programmes benefitting LDC members of the WTO (see <http://cldp.doc.gov>).

10.6. In June 2014, CLDP held a workshop on the prevention of counterfeit and illegal agro-inputs in Mali. The workshop covered oversight of agricultural product distribution, and the detection and prevention of fake agriculture products including pesticides, fertilizers, seeds and animal vaccines. Attendees included public- and private-sector stakeholders and representatives from farming associations in Mali. The programme aimed to help shape the national dialogue on the spread of counterfeit, illegal, and adulterated agricultural products and approaches to protecting farmers, food security, and the national economy from the effects of counterfeit and substandard products. It also included an overview of counterfeit products' impact on public health and food security, technologies that can help protect farmers from counterfeit products, and ways to improve cooperation between government agencies and other stakeholders in combatting counterfeit products. The workshop aimed to build the awareness and capacity of local stakeholders and help the Malian government shape its national strategy on the subject (see <http://cldp.doc.gov/category/countries-and-regions/sub-saharan-africa/mali>).

## 10.3 National Institute of Standards and Technology

10.7. The National Institute of Standards and Technology (NIST) is the host agency for the FLC, described above. The Stevenson-Wydler Technology Innovation Act of 1980 required all federal agencies to make technology transfer part of their mission. More recent legislation such as the Technology Transfer Commercialization Act of 2000 and the America Competes Act of 2007, mandated that federal agencies report technology transfer activities. NIST's Technology Partnerships Office is responsible for preparing reports on technology transfer for the Department of Commerce, as well as summarizing the activities reported by federal agencies and FFRDCs NIST (see <http://www.federallabs.org/flc/home/>).

10.8. NIST uses the following technology transfer mechanisms: Patents and Licensing; Cooperative Research and Development Agreements (CRADAs); User Facilities; Technical Publications; Participation in Documentary Standards Committees; Standard Reference Materials and Data; Calibration and Accreditation Services; Software Tools; Small Business Innovation Research (SBIR) Grants; Guest Researchers; Conferences, Workshops, and Inquiries; and Training

(see <http://www.nist.gov/tpo/publications/upload/DOC-FY-2013-Tech-Trans-Annual-Report-4-28-14.pdf>).

10.9. NIST has research laboratories, user facilities, and other programmes focused on advancing the measurement science, standards, and technology, and promotes the transfer of technology. In particular, NIST's Guest Researcher Program (see <http://www.nist.gov/tpo/collaborations/guestresearchers.cfm>) provides opportunities for technically qualified individuals to work at NIST on projects of mutual interest, with a key benefit of gaining access to NIST facilities, staff, and research tools. Guest researchers (or their home institutions) may retain rights to inventions conceived while at NIST. NIST operates two unique and valuable laboratory user facilities: the Centre for Neutron Research (which provides cold and thermal neutron measurement capabilities) and the Centre for Nanoscale Science and Technology (which provides a means to access advanced nanofabrication and measurement instrumentation). NIST also consults and reports on technology transfer from US government laboratories and provides consultation and assistance on US technology transfer legislation and procedures to other countries.

10.10. Each year, NIST hosts hundreds of foreign guest researchers at its facilities. In 2013, 20 researchers, from the following LDCs participated in this programme:

- Bangladesh – 7
- Benin – 1
- Burkina Faso - 3
- Ethiopia – 1
- Madagascar – 1
- Nepal – 4
- Niger – 1
- Senegal – 1
- Uganda- 1

10.11. In 2014, to date, 17 researchers from the following LDCs participated in this programme:

- Bangladesh – 6
- Benin – 1
- Burkina Faso – 2
- Madagascar – 1
- Nepal – 4
- Niger – 1
- Senegal – 1
- Uganda – 1

#### **10.4 US Patent and Trademark Office**

10.12. The US Patent and Trademark Office (USPTO) offers training and technical assistance on IPR protection and enforcement to countries around the world, including LDCs. A strong system of IPR protection is crucial to foreign investment and voluntary, private sector-led technology transfer in developing countries and for developing country innovators to capitalize on their creativity.

10.13. Since 2007, the USPTO has offered assistance through the Global Intellectual Property Academy (GIPA) at its state-of-the-art training facility at its headquarters in Alexandria, Virginia. Through these training programmes at GIPA, the USPTO delivers targeted training to foreign IP officials. Training focuses on pertinent information for IP office administrators, examiners, judges,

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prosecutors, customs officers, and other government and law enforcement officials (see <http://www.uspto.gov/ip/training/>).

10.14. In 2013, GIPA conducted more than 110 training, technical assistance, and capacity building programmes for over 7,000 participants from 134 different countries. Most participants came from developing and least-developed countries. LDC representatives from the following countries attended GIPA programmes in the United States in 2013: Benin, Bhutan, Cambodia, Democratic Republic of Congo, Guinea, Lao PDR, Mozambique, Niger, Senegal, and Togo. Other programmes hosted at the USPTO with LDC attendees included the 55<sup>th</sup> Annual Meeting of the International Association of Judges, the State Department's International Visitor Leadership Program, and the Foreign Mission Embassy Program.

10.15. USPTO posts IPR attachés at US embassies and consulates around the world. These attachés work with host governments, private sector entities, academia, advocacy groups, international organizations, and NGOs to provide IPR technical assistance and capacity building programmes of particular interest to countries in their region (see <http://www.uspto.gov/ip/global/attache/>).

10.16. In addition to programmes in the US, GIPA and IP Attachés also provide IP-focused technical assistance and capacity building to foreign officials in their home countries. These programmes have focused on IP rights enforcement as well as patent, trademark, and copyright policy and best practices. Participants at in-country or regional programmes offered in 2013 included government officials from Bangladesh, Benin, Bhutan, Burkina Faso, Burma, Burundi, Cambodia, Ethiopia, Gambia, Lao PDR, Liberia, Malawi, Nepal, Rwanda, Senegal, Tanzania, Togo, Uganda, and Zambia.

10.17. In June 2014, USPTO conducted 3-day training programme on combating counterfeit, falsified and substandard medicines for Sub-Saharan Africa. Program participants included drug regulators and law enforcement officials from Angola, Botswana, Mozambique, Namibia, Tanzania, and South Africa. Participants exchanged information on recent enforcement efforts and challenges, and heard from speakers from US Customs and Border Protection, USAID, State Department, and the Food and FDA. The UN Office of Drugs and Crime participated in a session. The programme included multiple demonstrations on counterfeit medicines detection technology, including technology invented by FDA's Forensic Chemistry Center.

10.18. In April 2014, the USPTO renewed the Patents for Humanity programme as an annual event to encourage assistance to LDCs. The programme, a voluntary prize competition, provides business incentives for patent owners and licensees to apply their technology to humanitarian purposes. Participants submit descriptions of how they are improving lives in five broad categories of global challenges: medicine, nutrition, sanitation, household energy, and living standards. Independent experts review the submissions and recommend winners, who receive accelerated processing of select patent matters at the USPTO (see [http://www.uspto.gov/patents/init\\_events/patents\\_for\\_humanity.jsp](http://www.uspto.gov/patents/init_events/patents_for_humanity.jsp)).

10.19. In 2012-13, the Patents for Humanity pilot programme received 81 applications. Volunteers from academia served as judges, ultimately selecting ten recipients for Patents for Humanity Awards. At an awards ceremony held, the inaugural winners received recognition of their efforts. (see [http://www.uspto.gov/patents/init\\_events/patents\\_for\\_humanity/awards2013.jsp](http://www.uspto.gov/patents/init_events/patents_for_humanity/awards2013.jsp)).

10.20. USPTO hosts seven IPR e-Learning modules (in Arabic, English, French, Russian and Spanish). By the end of 2013, the e-learning modules had received almost 39,000 hits since they were first placed on the USPTO website in early 2010 (see <http://www.uspto.gov/ip/training/elearn.jsp>).

10.21. The USPTO supports the efforts of the World Intellectual Property Organization (WIPO) to assist LDCs through the WIPO Re:Search and WIPO Green programmes, which provide platforms that promote access to IP rights and technical know-how for neglected tropical diseases and environmentally friendly technologies.

## 10.5 US Agency for International Development

10.22. USAID is the principal US agency involved in implementing the goal of ending extreme poverty and promoting economic growth and resilient democratic societies in developing countries. USAID's overarching goal in economic growth is to help partner countries achieve sustainable and resilient, rapid and broad-based growth that includes all vulnerable groups. Encouraging technology transfer is important in reaching this overarching goal.

10.23. In support of economic growth, agriculture, and trade, USAID endeavors to: (a) promote climate-resilient, low-emissions growth; (b) develop well-functioning markets in developing countries; (c) enhance access to productive opportunities for the poor, women and other disadvantaged groups; and (d) strengthen the international framework of policies, institutions and public goods that support growth prospects and opportunities for poor countries. Examples include research and development of special initiatives on agricultural, health and other problems specific to developing countries and promoting international standards — including good trade practices— that provide sound models for developing economies to emulate.

10.24. Helping LDCs integrate into the world economy is a major feature of USAID's economic growth and trade activities, which focus on trade and investment policy, institutional analysis and reform, TCB, technical training, environmentally sound natural resources management, and the promotion of US-Africa private sector development.

10.25. The African Competitive and Trade Expansion (ACTE) initiative supports USAID's three regional Trade Hubs for competitiveness in sub-Saharan Africa, based in Botswana, Ghana, and Kenya. The four-year (Sept. 2011 - Sept. 2015) \$120 million ACTE was designed to help expand African trade and investment with the United States, with other international trading partners, and regionally within Africa by improving the export competitiveness of sub-Saharan African enterprises (see <http://www.watradehub.com/> for the Trade Hubs in West Africa; <http://www.satradehub.org/> for the Trade Hubs in Southern Africa; and <http://www.competeafrica.org/> for the Trade Hubs in Eastern and Central Africa).

10.26. The USAID Global Development Alliance (GDA) mobilizes the ideas, efforts and resources of governments, businesses, and civil society by forging public-private alliances to stimulate economic growth, develop businesses and workforces, address health and environmental issues, and expand access to education and technology. The GDA business model links US foreign assistance with the resources, expertise, and creativity of global and local businesses, private philanthropy, and civil society. Since fiscal year 2001, GDA has formed more than 1,500 public-private partnerships with over 3,500 partner organizations, with an estimated value of more than \$20 billion in public and private funds (see <http://www.usaid.gov/gda>).

10.27. USAID has partnered with Cisco Systems in dozens of countries over the last decade. A number of USAID-Cisco collaborations have focused on supporting economic growth and workforce development through Cisco's Networking Academy programme, where individuals gain the skills needed to build, design, and maintain computer networks. The programme helps prepare students for industry-recognized certifications and information and communication technology (ICT) careers. Students develop foundational skills in ICT while acquiring vital 21st-century career skills in problem solving, collaboration, and critical thinking. USAID and Cisco are also collaborating in Burma, where three Cisco Networking Academies have been established. Through the end of June 2014, nearly 300 Burmese students (a majority of women) had received training (see <http://blog.usaid.gov/2013/03/usaid-and-cisco-to-establish-networking-academies-in-burma/>).

10.28. In FY2013, USAID Missions brought in nearly \$500 million in new private sector leverage for Global Development Alliances initiated that year, representing a 30% increase over new private sector leverage brought in FY2012. Through the GDA, USAID has not only gained additional financial resources for development activities, but also new technologies, intellectual capital, and technical and managerial expertise that enhances its ability to address an increasingly complex set of development challenges.

## 11 INCENTIVES RELATED TO TELECOMMUNICATIONS

### 11.1 Global Broadband and Innovations

11.1. USAID's Global Broadband and Innovations (GBI) programme has been designed to focus attention and resources on leveraging the adoption of ICTs across the US development portfolio. GBI focuses on three priority areas:

- i. Extending the reach of broadband, including enhanced mobile networks, into remote rural areas as a key infrastructure for extending the reach of socioeconomic services through partners, as well as others working within the international, national, and local development community;
- ii. leveraging the extension of broadband and mobile networks for delivering network-enabled value-added application support to development initiatives; and,
- iii. legal and regulatory issues to increase competition and reduce broadband costs in rural communities, with a strong focus on Universal Service Obligations (Funds) and National Broadband Plans and policy.

(see <http://www.usaid.gov/what-we-do/economic-growth-and-trade/infrastructure/information-communication-technology-development>)

11.2. A fundamental component of achieving this second priority is the leveraging of public-private partnerships (PPPs). The GBI Program places a priority on the second of these two focus areas, creating partnerships with large US ICT corporations such as Intel, Cisco, and Microsoft, as well as local ISP's operating at the country level in USAID-presence countries. USAID has also developed strong relationships with international industry associations such as the Global VSAT Forum under the GBI.

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