**BRICS Roadmap for Trade. Economic and Investment Cooperation until 2020**

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| **№** | **Russian side** | **BRICS Partner** |  |
| **Companies/organizations participating in the project** | **Project** | **Description of the project** | **Country** | **Agency/organization in charge** | **Schedule****time** |
| **Energy** |
|  | JSC "Rosneft" | Establishment of BRICS Energy Association. | The project includes the establishment of:1. Energy reserve fuel bank (to ensure energy security and to establish market infrastructure for providing hydrocarbons reserves and trade in the developing countries);
2. BRICS Energy Policy Institute (to promote comprehensive researches on energy and energy security, to analyze and forecast trends related to the oil, gas, petroleum products and petrochemicals markets, to elaborate new concepts in energy sphere and to publish analytical researches on the ongoing basis).
 | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC "Rosneft" | Development of technologies on environmental protection and renewable energy sources. | Conducting joint theoretical and applied researches on renewable resources, implementing environmental monitoring; promoting and developing technologies mitigating negative environmental impact while exploration/exploitation of hydrocarbons and eliminating the consequences of the anthropogenic disasters in the BRICS countries. | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC Uralmash-lzhora Group:JSC "Cryogenmash" | Construction of a liquefied petroleum gas plant. | Construction of a mobile plant for the utilization of colliery gas and providing supply of gas to the remote areas, industrial and residential units. | India (bilateral cooperation that might be expanded to multilateral) | Doma Energy Services Private Limited (India) |  |
|  | JSC "Inter RAO" Group; "Energy without borders" Foundation | Construction of the coal power units of the new generation for the combined heat and power (CHP) plants. | Construction of CHP coal power units with the capacity of 100-120 MW providing high technical and economic parameters. Can replace the existing equipment or ensure a new construction of the whole facility. | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC "Inter RAO" Group; "Energy without borders" Foundation | Establishment of an international centre for research and development in the energy sector (for the BRICS countries). | Establishing an international centre for research and development in energy based on the Russian Skolkovo Foundation with the provision of its tools and infrastructure. Promoting practice and knowledge exchange on energy and energy efficiency. | BRICS(multilateralcooperation) | partner is required |  |
|  | State corporation «Russian Technologies» (Rostec):JSC "United Engine Corporation" | Joint production and development of power, gas- pumping blowers based on aircraft gas turbine engines. | Joint development, production, adjustment and/or localization of gas turbines and further supply to the BRJCS markets. | BRICS(multilateralcooperation) | partner is required |  |
| **Manufacturing and mining industry** |
|  | JSC Uralmash-Izhora Group:JSC "Cryogenmash" | Construction of an air separation plant for smelters. | Turnkey construction of a large air separation facility with the capacity of 1,200 tons of oxygen per day for a purpose of improving the smelting process at metallurgical plants. | India (bilateral cooperation that might be expanded to multilateral) | Bushan Power & Steel Company Limited (India) |  |
|  | JSC "Zarubezhgeologiya"; LLC ''Almazintech1' | Cleaning the surface of diamonds and applying on an industrial scale a method of thermochemical enrichment for diamond-bearing kimberlitic concentrates. | Organization of an international company producing mineral processing equipment; creation of an industrial facility; introduction on an industrial-scale the enrichment technologies for the diamond-bearing kimberlitic concentrates on the particular enrichment plants. Application of pilot equipment for cleaning the surface of diamonds from impurities in an automatic mode. | BRICS(multilateralcooperation) | partner is required |  |
| **Mechanical engineering** |
|  | State corporation «Russian Technologies» (Rostec):JSC "Compas" | Development and supply of multi-functional mobile ports. | Promoting development and supply of multi-functional mobile ports designed for rapid deployment and safeguard the economic activities on the unequipped coast. A set of universal tools for rapid deployment provides necessary conditions for anchor, maintenance, loading and unloading the different types of vessels. Possible to provide ready turnkey units as well as certain technologies. | BRICS(multilateralcooperation) | partner is required |  |
|  | State corporation «Russian Technologies» (Rostec):JSC "Russian Helicopters" | Supplies of helicopters, equipment; providing services and assistance on maintenance infrastructure facilities. | Providing maintenance and after-sales service of helicopters; in the long term — establishment of a Centre ensuring spare parts for helicopters, maintenance and repair of avionics and other units, including engines; establishment of a training Centre for pilots (India); Providing supplies and after-sales service for Russian helicopters; exploring opportunities for assembly production (China);Providing supplies of spare parts for Russian helicopters to the Regional Technical Maintenance Centre assigned for the countries of sub-Saharan Africa (South Africa); Exploring opportunities for establishing a maintenance and repair Centre for Russian helicopters in Brazil. | BRICS(multilateralcooperation) | Integrated Helicopter Services Private Ltd. (India);China Easy Best Group Limited (China);Denel Aviation (South Africa);Atlas Taxi Aero (Brazil) |  |
|  | State corporation «Russian Technologies» (Rostec):JSC "Kamaz" | Establishment of joint assembly plants. | Establishment of joint assembly plants for buses on "Kamaz" chassis and "Marcopolo" body. Promoting joint activities in third countries; stimulating participation of third countries in the industrial assembly. | Brazil (bilateral cooperation that might be expanded to multilateral) | "Marcopolo"(Brazil) |  |
|  | JSC "Tupolev" | Supplies of passenger/cargo aircrafts and aircraft complexes for special purposes. | Providing supplies of the innovative and modernized civilian aircrafts: models Tu-204/Tu~204SM passenger and cargo aircrafts, special aircraft complexes based on the model Tu-214 (business jets, airborne command posts, radio relay aircraft and convertible medical evacuation aircraft). | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC "Irkut Corporation" | Strengthening of an industrial and technological cooperation in aviation. | Organization of an expert and business dialogue within BRICS countries to identify joint advanced programs in aviation. Exploring the opportunities for establishing a network of joint after-sales maintenance centers; exploring possibilities of technological cooperation on project MS-21. | BRICS(multilateralcooperation) | Hal Ltd. (India) HAIC (Hund Aviation Industry Group) (PRC), Denel Aviation (South Africa) Embraer S.A. (Brazil) |  |
|  | JSC "Uralvagonzavod":LLC "Chelyabinsk Tractor Plant - Uraltrak" | Supplies of road construction machines for the BRICS market. | Providing supplies of road building equipment to the BRICS markets: traction class dozers, front wheel loaders, pipe layers, graders. | BRICS(multilateralcooperation) | partner is required |  |
|  | CJSC "TVEMA Firm" | Creating a diagnostic facility and organizing supplies of railway equipment for inspection control of the railway infrastructure. | Creating a modem diagnostic complex (railcars) based on the use "TVEMA Firm" technologies for railways and underground of PRC; arranging supplies of general- purpose diagnostic equipment for railways and subways of India to ensure train safety. | Brazil,China,India(multilateralcooperation) | partner is required CSR Qishuyan Locomotive Co., Ltd.(China)Star Track Fasteners Pvt.Ltd. (India) |  |
| **Agriculture** |
|  | JSC "Navigation Information Systems" | Application of high-precision systems based on GLONASS/GPS technologies in agriculture. | Application of navigational equipment, combined with hydraulic systems of agricultural machinery. Result: high precision measurements of areas, the ability to track the trajectory of vehicles, differentiated fertilization and application of plant protection measures to cultivated fields. Application of high-precision positioning system in agriculture can increase crop yield by 30-50%; reduce motor capacity expenditure by 40%, shorten the time of machines transit by 14-18%, reduce fuel and lubricants expenditure by 15-20%; improve the profitability of farms by 60-90%. | BRICS(multilateralcooperation) | partner is required |  |
|  | UNIDO Centre in the Russian Federation:Industrial Innovation Club UNIDO Centre in the Russian Federation, JSC "Proeklpischestroy", International Science Bridge | Construction of plants for the production of pectin. | Construction of mini-factories for the production of pectin from citrus waste with the installation of technical equipment. | South African Republic (bilateral cooperation that might be expanded to multilateral) | Eastern Cape Development Corporation (SAR),Coega IDZ Development Corporation (CDC) (SAR) |  |
|  | UNIDO Centre in the Russian Federation:Federal Fisheries Agency (Russian Federation), FSUE «The National Fish Resources», Industrial Innovation Club UNIDO Centre in the Russian Federation | Development of technologies for fish processing. | Arranging training programs for specialists in fishery, promoting practice and knowledge exchange on fish processing technologies. | BRICS(multilateralcooperation) | partner is required |  |
|  | Scientific production Enterprise «Avivac» | Supplies of veterinary vaccines. | Providing supplies of veterinary vaccines for the poultry industry, promoting joint researches on the new biological preparations and diagnostic test systems. | BRICS(multilateralcooperation) | partner is required |  |
| **Transport and Logistics** |
|  | JSC ''Navigation Information Systems" | Implementing a transportation monitoring system based on the GLONASS / GPS technologies. | Using GLONASS / GPS technologies to improve vehicle fleet management. Project objectives: to provide constant monitoring over location and movement of transport; to implement control system and automated measurement of mileage, consumption of oil and lubricants; to monitor the efficiency of the vehicles (idle time, mileage); to improve workforce and fleet performance; to optimize transport routes and timetables; to increase safety; to reduce thefts of goods and vehicles; to implement efficient management and superintendent traffic systems. Result: accurate positioning and vehicles location control; traffic performance optimization; the ability to manage delivery; optimizing transport route and mileage, predicting unauthorized usage of motor vehicles; increasing the period of vehicles possession; reducing needs to expand the vehicle fleet; shortening delivery time of goods; increasing the turnover of transport; saving fuel and lubricants; ensuring safety. | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC "Navigation Information Systems" | Implementation of an emergency response system based on GLONASS / GPS. | Using GLONASS / GPS technologies to increase safety of public transportation. Project objectives: reducing death and serious injury cases; increasing safety of cargo and public transportation. Result: 30% time reduction in emergency and rescue response; cost reduction of emergency response; establishing a groundwork for providing key services based on GLONASS/GPS. | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC "Navigation Information Systems" | Introducing road toils on the basis of GLONASS/GPS technologies. | Applying technologies based on GLONASS/GPS to impose economic effects over cargo transportation and traffic density on the roads with regular traffic jams. Project objectives: minimizing traffic congestions, preventing road damage caused by trucks; minimizing travel time and maximizing revenue; providing easy access to the social welfare. Result: replenishing road construction funds and implementing cost reduction affiliated with additional roadside infrastructure for mad networks of any size and composition; introducing informative and timely system of making decisions on targeted financing and infrastructure development of regional roads; providing efficient management over control and redirecting traffic flows using economic tools. | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC "Navigation Information Systems” | Application of smart traffic system based on GLONASS/GPS. | Creating an integrated system of transport management, involving all types of public transport. Project objectives: introducing self-operated control system over transportation; creating an automatic system of traffic violations recording; optimizing transport tracks to control traffic density; providing information to citizens and organizations regarding city traffic situation; providing information assurance to control the execution of state and municipal transportation contracts for goods delivery; providing information support for emergency services. Result: optimization of traffic flows; establishment a unified management system of urban transport including road services and traffic track information. | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC "Navigation Information Systems" | Application of GLONASS / GPS technologies to optimize logistics. | Introducing self-operated control system for cargo transportation using all types of transport (railway/air, car, sea); introducing self-operated control system for public transportation using all types of transport (railway/air, sea, cable cars, trucks). | BRICS(multilateralcooperation) | a partner is required |  |
|  | OJSC Concern "Almaz - Antey" | Modernization of national air traffic management system. | Promoting modernization of technologies, introducing advanced equipment to improve flight safety and air space efficiency. Result: improving flight safety and air space capacity (including an increase in passenger traffic); reduction in operating costs for an air space users; improving the accuracy of aviation forecasts. | BRICS(multilateralcooperation) | partner is required |  |
| **High-tech manufacturing, information and communications technologies** |
|  | State corporation «Russian Technologies» (Rostec):JSC "Compas" | Supplies and joint development of radio electronic goods and software; research and development at the request of the customer. | Providing supplies of: satellite aircraft receivers and automatic direction finders; autonomous stations for monitoring the aquatic environment and transferring of the obtained data over the air to the data collection and processing centre in an automatic mode; automated repair laboratory «BARS» designed for the automated and manual diagnosis and repair of radio electronic systems and complexes; software system "Object information system" designed to automate the management system of urban infrastructure; universal simulators of the GLONASS satellite navigation system; cargo tracking systems on the basis of GLONASS. | BRICS(multilateralcooperation) | partner is required |  |
|  | LLC "Sonda Technologies" | Introduction a system of citizens fingerprint identification in real time. | Application of a system designed for biometric population recording and documents issuance of a new generation based on the use of innovative technologies on processing and comparing fingerprints. | Brazil (bilateral cooperation that might be expanded to multilateral) | NeoTech Ltd. (Brazil), Sanepar Ltd. (Brazil) |  |
|  | LLC "S.P.Helpic" | Supply of medical equipment. | Providing supply of medical equipment to the BRICS markets: magnetic resonance scanner imaging of extremities; low dose digital X-ray chest screening system; X-ray mobile unit; mobile laboratory with low dose digital X-ray chest screening system FTSM BARS - Renex. Providing consulting services; establishing training centers for engineering staff. In the long-term: exploring opportunities on screwdriver assembly of medical equipment in the recipient country. | BRICS (multilateralcooperation) | partner is required |  |
|  | OJSC Concern "Almaz - Antey" | Establishing and developing a meteorology system at the national level in the BRICS countries. | Creating and equipping observational networks with modem meteorological facilities; uniting meteorological facilities into a single network; organizing international exchange of meteorological data received from national monitoring networks. Result: increasing the accuracy of synoptic forecasts; improving national security in terms of preventing negative and dangerous consequences of natural phenomenon. | BRICS(multilateralcooperation) | partner is required |  |
|  | En+ Group: Business Group "Basic Element" | Constructing a centre for processing and storage of electronic data. | Constructing a Centre for processing and storage of electronic data in the Irkutsk Region; installing technological equipment. Providing rent service for information storage using the Centre’s servers to the Russian and foreign companies of every description. Result: ensuring easy access to the information systems, providing high level of information protection and storage of electronic data. | BRICS (India, China) (multilateral cooperation) | partner is required |  |
|  | Russian Federal Space Agency | Creation of an international consortium for the development of commercial satellite navigation technologies using GLONASS (pilot project). | Establishing a global high-precision navigation system with the use of GLONASS technologies designed for the civilian users. Promoting integration and sharing network resources of navigation systems. In the long-term: initiation of the united navigation zone. | BRICS(multilateralcooperation) | China Satellite Navigation Office, Indian Space Research Organization |  |
|  | JSC "Navigation Information Systems" | Monitoring pipelines on the basis of GLONASS/GPS technologies. | Applying advanced system designed for the leakages detecting from pipelines by measuring the line pressure in different parts of the pipeline. The system displays: leakages in the pipeline network; stealage from the pipeline; deviations from the pressure values; connection to other applications of the management systems; connection to the safety systems; reveals protection level and management efficiency over technological facilities and valves | BRICS(multilateralcooperation) | partner is required |  |
| **Science and technology, human resources development** |
|  | Ministry of Education and Science of the Russian Federation | Compiling BRICS universities ranking. | Compiling a ranking of the universities in the BRICS countries. Objectives: improving the competitiveness of the higher education institutions in the BRICS countries on the educational market; improving investment attractiveness of higher education institutions; raising awareness about universities of the BRICS countries on the global education market; establishing partnerships in the academic community of the BRICS countries. | BRICS(multilateralcooperation) | Institutions of higher education, executive organizations of the BRICS countries engaged in education sphere are invited to cooperate; British rating company Quacqaurelli Symonds |  |
|  | Federal Youth Agency (Rosmolodezh) | Conducting joint youth activities aimed at non-formal education, promoting experience exchange for youth organizations. | Promoting thematic events, round tables and other forms of youth cooperation in the framework of BRICS. Establishing a dialogue and exchange of experience for professionals working with young people. | BRICS(multilateralcooperation) | partner is required |  |
|  | UNIDO Centre in the Russian Federation:International union of metallurgical equipment producers "Metallurgmash”, Magnitogorsk State Technical University, International Science Bridge | Establishing a training centre for the metallurgical industry specialists of the BRICS countries. | Creating innovative, technical training programs and practices aimed at professional development of engineering, technical and managerial staff employed in the metallurgical industry of the BRICS countries. Developing a set of criteria for training assigned to meet current standards of professional education at the international level. In the long term: establishing a specialized interregional university-based centre with the coordinating role of the enterprises engaged in the industry. | BRICS(multilateralcooperation) | partner is required |  |
|  | JSC "Zarubezhgeologia" | Creating diamonds global identification system (GDIS). | Establishing an international company manufacturing equipment for diamonds identification by fluorescent spectroscopy method; production of equipment and software samples; creating a database and definition criteria for the diamonds identification; completion and implementation of diamonds global identification system. Result: strengthening control in diamond trade; preventing diamonds substitution by its identification for particular mine, kimberlitic field and diamond province. | BRICS(multilateralcooperation) | partner is requiredDiamond mining, lapidary and other enterprises in India, Brazil, China that work in the field of diamonds identification are invited to cooperate. |  |
|  | JSC "Zarubezhgeologia" | Application of the zircon luminescence spectroscopy method for the geological exploration. | Providing supply and adjustment of the fluorescent spectroscopic equipment and software designed for the zircon identification; creating a regional database on zircon and clarifying criteria for their identification; technology implementation on the particular exploratory areas of the BRICS countries. | BRICS (multilateralcooperation) | partner is required Geological exploration and research companies from South Africa, India, Brazil, China are invited to cooperate. |  |