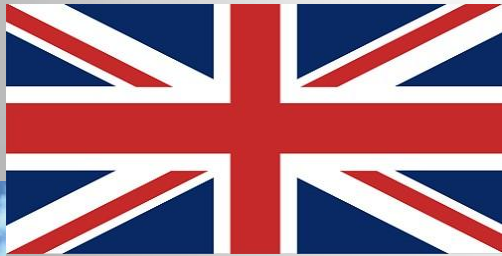




INDIAN AEROSPACE INDUSTRY



**A.K. SAXENA
DIRECTOR, UK AERO, ADS .UK
BANGALORE
INDIA**



INDIA AT A GLANCE

- INDIAN ECONOMY.
- 7.5% CURRENT GDP GROWTH.
- \$1597.5 BILLION (₹ 72.6 TRILLION) ECONOMY
- 4TH LARGEST BY PPP(PURCHASING POWER PARITY.)
- CUMULATIVE FDI SINCE 1991 (POST LIBERLISATION) ; \$145.2 BILLION.
- FDI BETWEEN APRIL 2010- FEB 2011 ; \$18.2 BILLION
- FOREX RESERVE; \$303.5 BILLION
- GENERAL INFORMATION.
- 7TH LARGEST COUNTRY IN THE WORLD AREA WISE. 3.3 MILLION SQ.KM.
- IN AREA, 28 STATES AND 7 UNION TERRITORIES..
- LAND FRONTIER ;15,200 KM. ; COASTLINE ; 7600KM.
- POPULATION; 1210.19 MILLION.
- 500 MILLION UNDER 25 YEARS – YOUNGEST NATION IN THE WORLD.
- 280 MILLION STRONG AND GROWING MIDDLE CLASS.
- 882 MILLION- WORKING AGE POPULATION IN 2020.
- 4TH LARGEST IN TERMS OF NUMBER OF BILLIONAIRES.
- ESTABLISHED FREE AND INDEPENDENT JUDICIARY
- DYNAMIC AND VIBRANT DEMOCRACY.
- INDEPENDENT AND FREE - PRINT AND ELECTRONIC MEDIA.
- DYNAMIC AND VIBRANT NATIONAL STOCK EXCHANGES.
- WELL ESTABLISHED EDUCATION SYSTEM AND PREVALENCE OF ENGLISH LANGUAGE



INTRODUCTION



- **OVER DECADES INDIAN AEROSPACE INDUSTRY HAS SHOWN VERY RAPID GROWTH.**
- **SELF RELIANCE HAS BEEN THE CORNERSTONE OF INDIA'S STRATEGIC DEFENCE PRODUCTION POLICY**
- **LARGE DEFENCE PRODUCTION INFRASTRUCTURE WAS CREATED IN THE FORM OF**
 - **DEFENCE PSUs**
 - **ORDNANCE FACTORIES**
 - **R&D LABS.**
- **PRIVATE SECTOR CONTRIBUTED AS SUBCONTRACTORS AND ANCILLARY TO DEFENCE PRODUCTION INDUSTRY.**
- **IN MAY 2001, GOVT. OF INDIA DECIDED TO OPEN DEFENCE PRODUCTION INDUSTRY TO PRIVATE SECTOR CONSIDERING IT TO BE HIGHLY CAPITAL INTENSIVE AND ALSO THE NEED TO INFUSE STATE-OF-THE-ART TECHNOLOGIES.**
- **PRIVATE SECTOR PARTICIPATION PERMITTED UPTO 100% AND FDI UPTO 26%. BOTH REQUIRE INDUSTRIAL LICENCE.**

HINDUSTAN AERONAUTICS LIMITED



HINDUSTAN AIRCRAFT LIMITED, WAS ESTABLISHED IN DECEMBER 1940 AT BANGALORE, AS A PRIVATE SECTOR AVIATION INDUSTRY IN INDIA. SUBSEQUENTLY TAKEN OVER BY GOVERNMENT OF INDIA.

• HINDUSTAN AERONAUTICS LIMITED CAME IN EXISTENCE IN 1964 WITH THE MERGER OF;

- HINDUSTAN AIRCRAFT LIMITED, BANGALORE**

- AERONAUTICS INDIA LIMITED (NASIK, KORAPUT, HYDERABAD) (1962)**

- AIRCRAFT MANUFACTURING DEPOT (KANPUR) (1960)**

• TODAY HAL HAS 19 PRODUCTION DIVISIONS AND 10 RESEARCH & DESIGN CENTRES, LOCATED ACROSS INDIA.

• TURNOVER: \$2 BILLION PLUS. RANKS 34TH IN TOP 100 GLOBAL AVIATION COMPANIES

• TILL DATE PRODUCED 3500 AIRCRAFT, 3600 ENGINES, OVERHAULED OVER 8150 AIRCRAFT, 27,300 ENGINES.

HINDUSTAN AERONAUTICS LIMITED



CUSTOMERS:

DOMESTIC:

- INDIAN AIR FORCE, INDIAN ARMY, INDIAN NAVY
- ISRO, DRDO, BSF, COAST GUARD
- CIVIL AIRLINES
- DEFENCE AND NON-DEFENCE PSUs, PRIVATE INDUSTRY

INTERNATIONAL:

AIRBUS INDUSTRIE, BOEING, BAE SYSTEMS, ROLLS ROYCE, MARTIN BAKER, EADS, SAFRAN, DASSAULT AVIATION, ISRAEL AIRCRAFT INDUSTRY, ELBIT ISRAEL, MHI JAPAN, HONEYWELL, MOOG, GE, PRATT & WHITNEY, MESSIER DOWTY, ETC. VARIOUS AIRFORCES OF THE WORLD

HINDUSTAN AERONAUTICS LIMITED



MAJOR PROGRAMMES AT HAL

CURRENT :

- **SU 30 Mk I**
- **HAWK Mk 132**
- **ADVANCED LIGHT HELICOPTER (ALH)
DHRUV PROJECTED MARKET 500-600 H/C**
- **LIGHT COMBAT AIRCRAFT (LCA)**
- **INTERMEDIATE JET TRAINER (IJT)**
- **LIGHT COMBAT HELICOPTER (LCH)**
- **LANCER LIGHT ATTACK HELICOPTER**
- **DO 228 MULTI MISSION AIRCRAFT**
- **UNMANNED AERIAL VEHICLE (UAV)
LAKSHYA, NISHANT**



HINDUSTAN AERONAUTICS LIMITED



MAJOR PROGRAMMES AT HAL

FUTURE :

- MEDIUM MULTI ROLE COMBAT AIRCRAFT (MMRCA), ESTIMATED COST : \$10.4 BILLION
- SHORTLISTED AIRCRAFT
- EUROFIGHTER (EADS) AND RAFALE(DA)
- COMMERCIAL BIDS OPENED ON 4TH NOV.
- LI BEING DECIDED ON KEY FACTORS VIZ.
- LIFE CYCLE COST, OFFSET OFFERS,DEPTH OF TECHNOLOGY TRANSFER, MAINTENANCE SPARE PACKAGES,OPERATIONAL COSTS ETC.



WINNER LIKELY TO BE DECLARED MID DEC.

HINDUSTAN AERONAUTICS LIMITED

MAJOR PROGRAMMES AT HAL

MMRCA

- **PRICE AND CONTRACT NEGOTIATION TO COMMENCE IMMEDIATELY AND CONTRACT TO BE SIGNED BY 31ST MARCH 2012.**

- **NAVAL & TRAINER VERSION OF LCA .**

- **MULTI ROLE TRANSPORT AIRCRAFT (MRTA)**

CONTRACT FOR JOINT DEVELOPMENT BY

HAL AND RUSSIANS SIGNED. DEV. COST \$600MN

- **LIGHT UTILITY HELICOPTER. 197 NOS.**

ESTIMATED COST \$750 MILLION.

CURRENT CONTENDERS; EUROCOPTER AS-550

KAMOV KA-26



HINDUSTAN AERONAUTICS LIMITED



MAJOR PROGRAMMES AT HAL

FUTURE : LUH

PROCUREMENT;OUTRIGHT PURCHASE 30% OFFSETS

ADDITIONAL REQUIREMENT OF 187 INDIGENOUS LUH
BY HAL.

- **AB- INITIO TRAINER. INDIAN AIR FORCE HAS
SELECTED SWISS PILATUS PC-7.**

**75 AIRCRAFT TO BE PURCHASED DIRECT.
ADDITIONAL 80-100 TO BE INDEGENOUSLY
DEVELOPED AND PRODUCED BY HAL.**



HINDUSTAN AERONAUTICS LIMITED



MAJOR PROGRAMMES AT HAL

UPGRADES :

- **MIRAGE 2000**



- **JAGUAR**



- **MIG 29**



- **HELICOPTERS**



CHEETAH, CHETAK, MI17

- **TRANSPORT A/C 32, HS748**



- HAL WITH MULTI PRODUCT DIVERSE STATE-OF-THE-ART TECHNOLOGIES IN THE FIELD OF MANUFACTURE, MRO, R&D CAPABILITIES, IS EMERGING AS GLOBAL AEROSPACE GIANT AND ALSO AS GLOBAL OUTSOURCING DESTINATION OF GLOBAL AEROSPACE MAJORS.

HINDUSTAN AERONAUTICS LIMITED



MAJOR PROGRAMMES AT HAL

FUTURE :

- **FIFTH GENERATION FIGHTER AIRCRAFT**
CONTRACT SIGNED BY HAL FOR JOINT DEVELOPMENT WITH SUKHOI. EST. PROJECT COST \$30 BILLION



- **FIRST RUSSIAN VERSION FLEW AT RECENTLY CONCLUDED MOSCOW AIRSHOW.**



INDUCTION IN IAF LIKELY IN 2018.



- **UNMANNED AERIAL VEHICLE (UAV) IN VARIOUS CONFIGURATIONS & ROLES**



DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (DRDO)



DRDO IS A NETWORK OF 52 LABORATORIES ENGAGED IN DEVELOPING CRITICAL DEFENCE TECHNOLOGIES ENCOMPASSING:

- **AERONAUTICS**
- **ARMAMENTS**
- **COMBAT ENGINEERING**
- **ELECTRONICS AND COMPUTERS**
- **LIFE SCIENCES**
- **MATERIALS**
- **MISSILES**
- **NAVAL SYSTEMS**
- **5000 SCIENTISTS, 25000 OTHER SCIENTIFIC & TECHNICAL PERSONNEL**

BRAHMOS AEROSPACE



AN INDO-RUSSIAN JOINT VENTURE, ENGAGED IN THE DESIGN - DEVELOPMENT AND MANUFACTURE OF BRAHMOS SUPERSONIC CRUISE MISSILE FOR USE IN MULTIPLE PLATFORMS LIKE SHIPS, SILOS, MOBILE LAUNCHERS, AIRCRAFT, SUBMARINES AGAINST LAND AND NAVAL TARGETS.



BHARAT ELECTRONICS LIMITED



- IT IS A MULTI PRODUCT, MULTI TECHNOLOGY WITH 9 MANUFACTURING UNITS.
- PRODUCT PROFILE: RADARs, NAVAL SYSTEMS, DEFENCE COMMUNICATION, TELECOMMUNICATION, BROADCASTING, ELECTRONIC WARFARE, OPTO ELECTRONICS, ELECTRONIC COMPONENTS

ELECTRONIC CORPORATION OF INDIA



- MULTI PRODUCT, MULTI TECHNOLOGY AND MULTI DISCIPLINARY ORGANISATION.
- PROVIDES PRODUCTS AND SERVICES TO ATOMIC ENERGY SECTOR, SPACE, DEFENCE, ELECTRONIC SECURITY APPLICATIONS, COMMUNICATION AND NETWORKS ETC.

NATIONAL AEROSPACE LABORATORY (NAL)



- A HIGH TECHNOLOGY ORIENTED INSTITUTION, FOCUSING ON ADVANCED TECHNOLOGIES IN AEROSPACE AND RELATED AREAS

- EQUIPPED WITH SOPHISTICATED WORLD CLASS TEST FACILITIES, 1.2 M TRISONIC TUNNEL COMPLEX, FULL SCALE FATIGUE FACILITY, ACOUSTIC TEST FACILITY, COMPOSITE STRUCTURE FACILITY, ADVANCED TURBO MACHINERY, FAILURE ANALYSIS LAB, ELECTROMAGNETIC LAB

- SUCCESSFULLY DESIGNED “HANSA”
TRAINER AIRCRAFT



- TRANSPORT AIRCRAFT 5 SEATER “SARAS”
UNDERGOING FLIGHT TRIALS AND CERTIFICATION



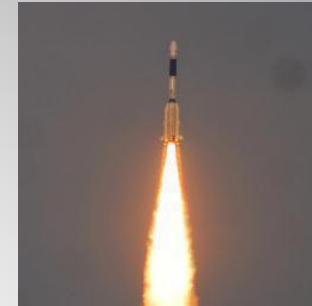
INDIA IN SPACE TECHNOLOGIES



- INDIAN SPACE PROGRAMME OBJECTIVE TO ACHIEVE SELF-RELIANCE IN SPACE TECHNOLOGY AND TO EVOLVE SPACE APPLICATION PROGRAMMES TO MEET THE DEVELOPMENTAL NEEDS OF THE COUNTRY.
- IN LAST FIVE DECADES INDIAN SPACE RESEARCH ORGANISATION (ISRO) HAS LAUNCHED MORE THAN 50 SATELLITES FOR VARIOUS APPLICATIONS; MOBILE COMMUNICATIONS, DIRECT-TO- HOME SERVICES, METEOROLOGICAL OBSERVATIONS, TELEMEDICINE, TELE-EDUCATION, DISASTER WARNING, RADIO NETWORKING, SEARCH AND RESCUE OPERATIONS, REMOTE SENSING AND SCIENTIFIC STUDIES OF SPACE.
- ISRO HAS A SPACE VISION 2025 DOCUMENT.
- ANTRIX CORPORATION IS THE COMMERCIAL ARM OF ISRO.
- CURRENT PROGRAMMES;
 - 1. SATELLITES; INSAT- COMMUNICATION, TV BROADCASTING, METEOROLOGICAL IRS – MONITORING AND MANAGEMENT OF NATURAL RESOURCES
 - 2. LAUNCH VEHICLES;
 - POLAR SATELLITE LAUNCH VEHICLE(PSLV) ; 1.6 TONNE IRS SATT;
 - LAUNCHED 4 SATELLITES , 19 INDIAN AND 29 FOR INTERNATIONAL CUSTOMERS.
 - GEO SYNCHRONOUS SATELLITE LAUNCH VEHICLE (GSLV); 2-2.5 TONNE SATT.INSAT;
 - GSLV MARIII. TO LAUNCH 4.5-5 TONNES SATT.
- 473 VILLAGE RESOURCE CENTRES ESTABLISHED TO PROVIDE SPACE ENABLED SERVICES DIRECTLY TO RURAL POPULATION.



INDIA IN SPACE TECHNOLOGIES.



- FUTURE PROGRAMMES;
- REUSABLE LAUNCH VEHICLE,
- HUMAN SPACEFLIGHT 2015,
- CHANDRAYAN II 2012-2013 TO UNDERSTAND ORIGIN AND EVOLUTION OF MOON.
- ADITYA I INDIAN SPACE BASED SOLAR CHRONOGRAPH TO STUDY SOLAR CORONA.
- GAGAN – GPS AIDED GEO AUGMENTED NAVIGATION. INDIGENOUS SATT. BASED REGIONAL GPS AUGMENTATION SYSTEM.SATT. BASED NAVIGATION AND SEVEILLANCE(CNS)/AIR TRAFFIC MANAGEMENT(ATM) FOR CIVIL AVIATION.
- ASTROSAT; ASTRONOMICAL OBSERVATORY SATT. TO EXPAND SCIENTIFIC KNOWLEDGE ABOUT EVOLUTION OF STELLER OBJECTS;DATA ON HIGH ENERGY ASTRONOMY AND ASTROPHYSICS.
- SPACE CAPSULE RECOVERY EXPERIMENT (SRE); DEVELOP AND DEMONSTRATE CAPABILITY TO RECOVER ORBITING CAPSULE BACK TO EARTH ,DO MICRO GRAVITY EXPERIMENTS IN ORBIT.
- ISRO HAS A NUMBER OF INTERNATIONAL PARTNERSHIPS AND MOUs INCLUDING NASA, RUSSIA ,FRNCE , UK , ITALY
- INDO- UK COLLABORATION OPPORTUNITIES.
- BASED ON UK GOVERNMENT’S RESPONSE TO 15 RECOMMENDATIONS MADE BY INNOVATION AND GROWTH TEAM (IGT), AND FORECAST MADE FOR REVENUE FROM UK SPACE SECTOR TO GROW FROM PRESENT LEVEL OF 6 BN GBP TO 40BN GBP; INDIAN SPACE MARKET AND PROJECTS OFFERS GREAT OPPORTUNITIES FOR COLLABRATIVE
- RESEARCH WORK AT INTERNATIONAL SPACE CENTRE ,HARWELL AND HARDWARE SUPPLIES BY SPACE INDUSTRY OF UK.

INDIAN SPACE RESEARCH ORGANISATION (ISRO)



SINCE 1972 SUCCESSFULLY DESIGNED, DEVELOPED SATELLITES AND LAUNCH VEHICLES

• SATELLITES: ARYABHATTA, BHASKARA, APPLE SROSS, IRS, INSAT.

INSAT AND IRS ARE THE TWO MAJOR SPACE SYSTEMS



• INSAT: COMMUNICATION, TELEVISION BROADCASTING, METEOROLOGICAL SERVICES. 210 TRANSPONDERS IN THE SYSTEM, TARGET-500 IN THE NEXT 4-5 YEARS.

• IRS: (INDIAN REMOTE SENSING SATELLITE) – RESOURCE MONITORING AND MANAGEMENT

TWO SATELLITE LAUNCH VEHICLES:

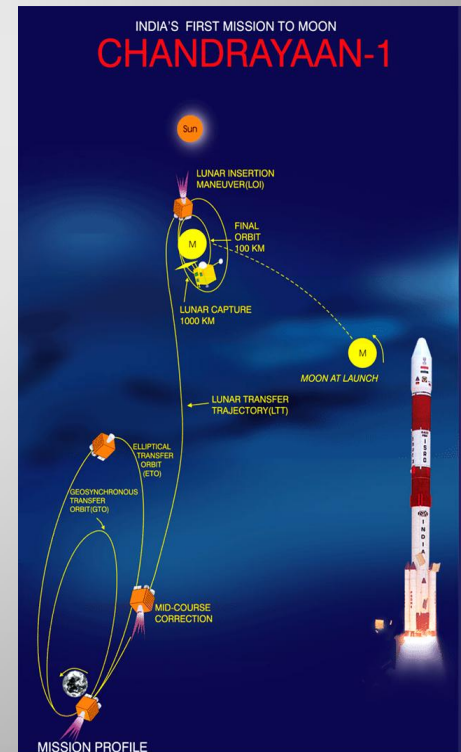
• PSLV (POLAR SATELLITE & LAUNCH VEHICLE).

• GSLV (GEO SYNCHRONOUS LAUNCH VEHICLE)

CHANDRAYAAN - I (MOON MISSION)

MAJOR ACHIEVEMENT : LAUNCH OF CHANDRAYAAN-I SPACECRAFT ON 22ND OCTOBER 2008 BY PSLV-XL. FOR HIGH RESOLUTION REMOTE SENSING OF THE MOON INVISIBLE NEAR INFRARED, LOW ENERGY X-RAYS AND HIGH ENERGY X-RAY REGIONS. IT IS MOST SUCCESSFULLY MEETING THE MISSION OBJECTIVES.

• CHANDRAYAAN-II WILL BE LAUNCHED IN DUE COURSE. GREATEST ACHIEVEMENTS IN INDIGENOUS DEVELOPMENT OF MOST COMPLEX SPACE TECHNOLOGIES AND THE SATELLITES LAUNCH VEHICLES.



SOME PRIVATE AND NON DEFENCE PSUs IN DEFENCE PRODUCTION

- A NUMBER OF JVs WITH FOREIGN PARTNERS



SOME JOINT VENTURES

- **SAMTEL - THALES**
- **DASSAULT AVIATION - INCAT**
- **DCNS FRANCE - WALCHAND INDUSTRIES**
- **BHARAT ELECTRONICS – WASS, ITALY**
- **RAFAEL - ISRAEL**
- **THALES - ROLTA**
- **BEL - ELBIT**
- **BOEING - TATA**
- **TATA – IAI (ISRAEL AIRCRAFT INDUSTRIES)**
- **HAL - SNECMA**
- **HAL – ELBIT**
- **HAL - BAE**
- **TATA –AUGUSTA W ESTLAND**
- **TATA-SICORSKY**
- **HAL-ROLLS ROYCE**

CIVIL AVIATION

- AIR TRAVEL COMPOUND ANNUAL GROWTH RATE (CAGR) OF 18%
- INDIA SECOND FASTEST TRAVEL TOURISM ECONOMY IN THE WORLD
- ANNUAL INTERNATIONAL CARGO GROWTH APPX. 9.9% AND DOMESTIC 12.5%.



- 74% FOREIGN INVESTMENT IN CARGO SERVICES .
- AS PER ESTIMATES, ASIAN CARRIERS SPEND APPROXIMATELY 21% OF THE GLOBAL MARKET AMOUNTING TO \$7.7 BILLION ANNUALLY. FORECAST UPTO 2014 IS \$16 BILLION. INDIA HAS POTENTIAL TO EMERGE AS GLOBAL/REGIONAL MRO HUB WITH ITS COST COMPETIVENESS, TALENT AVAILABILITY, LOCATIONAL ADVANTAGE AND PRESENCE OF SPECIALIST CAPABILITIES. INDIA'S MRO SEGMENT TO GROW AT 10% AND REACH \$3BN BY 2020.

CIVIL AVIATION

- AS PER ASIA PACIFIC AVIATION – INDIA WILL HAVE POTENTIAL TO SERVICE 1000 COMMERCIAL AND 500 GENERAL AVIATION AIRCRAFT BY 2020.
- GOVERNMENT HAS ALSO REVISED THE FDI LIMIT TO 100% FROM THE PRESENT 49%
- INDIA WILL EMERGE AS MRO HUB IN THE REGION
- THERE ARE 445 AIRPORTS / ENCLAVE / AIRSTRIPS IN INDIA



- A SUM OF APPX. \$100 BILLION WILL BE SPENT IN THE UPGRADATION AND CREATION OF GREEN FIELD AIRPORTS AND OTHER AIRPORT INFRASTRUCTURE.
- FDI UPTO 100% ALLOWED IN GREEN FIELD AIRPORTS
- FDI UPTO 74% ALLOWED IN UPGRADATION / MODERNISATION OF EXISTING AIRPORTS

CIVIL AVIATION FLYING TRAINING INSTITUTES & SIMULATORS

- HUGE SHORTAGE OF FLYING PERSONNEL
- FDI UPTO 100% ALLOWED IN FLYING TRAINING INSTITUTES



- A NUMBER OF JVs AND MOUs HAVE BEEN SIGNED BY INDIAN COMPANIES WITH FOREIGN PARTNERS LIKE BOEING, EADS, MALAYSIAN AIRLINES, SWISS PORTS, ETC.
- GROWTH IN INDIAN CIVIL AVIATION SECTOR WILL BE EXPONENTIAL

DEFENCE PRODUCTION PROCEDURE (DPP 2011)

WILL COVER ALL CAPITAL ACQUISITIONS (EXCEPT MEDICAL EQPT. UNDERTAKEN BY THE MINISTRY OF DEFENCE, DEFENCE SERVICES AND INDIAN COAST GUARD BOTH FROM INDIGENOUS SOURCES AND FOREIGN VENDORS.

ACQUISITIONS CATEGORIES

- “BUY’ INDIAN” : INDIAN VENDORS ONLY.NO OFFSET OBLIGATION.**
- “BUY GLOBAL” : INDIAN AS WELL AS FOREIGN VENDORS
INDIAN CONTENT IN THE PRODUCT MIN.30%**
- “BUY AND MAKE”:
PURCHASE FROM FOREIGN VENDOR FOLLOWED BY
LICENCEDINDEGENOUS PRODUCTION MIN.INDIAN
CONENT 50% ON COST BASIS.**

“MAKE” : COMPLEX SYSTEM DEVELOPED AND PRODUCED IN INDIA.

UPGRADES: UPGRADES TO ANY IN SERVICE WEAPON SYSTEM/EQPT.WILL BE COVERED UNDER ANY OF THE ABOVE FOUR CATEGORIES.

PRODUCTS/SERVICES ELIGIBLE FOR DISCHARGE OF OFFSETS.



- **DEFENCE PRODUCTS**
- **INTERNAL SECURITY PRODUCTS**
- **CIVIL AEROSPACE PRODUCTS**



- **DIRECT FOREIGN INVESTMENT IN INDIAN INDUSTRY FOR SERVICES, CO-DEVELOPMENT, JOINT VENTURES AND CO-PRODUCTION OF ELIGIBLE PRODUCTS AND SERVICES**
- **‘SERVICES’ WILL MEAN MAINTENANCE, OVERHAUL, UPGRADATION, LIFE EXTENSION, ENGINEERING, DESIGN TESTING OF ELIGIBLE PRODUCTS AND**
- **TRAINING , INCLUDING TRAINING SERVICES AND TRAINING SIMULATORS EXCLUDING CIVIL INFRASTRUCTURE.**
- **DIRECT FOREIGN INVESTMENT IN INDIAN ORGANISATIONS ENGAGED IN R&D AS CERTIFIED BY DEFENCE OFFSET FACILITATION AGENCY(DOFA)**

DETAILED LISTS FOR THE ABOVE PRODUCTS ARE GIVEN IN ANNEXURE VI To APPENDIX D OF DPP 2011 OF IMOD.

FDI LIMIT 26% .

- **SINGLE WINDOW AGENCY UNDER THE DPP TO:**
 - FACILITATE IMPLEMENTATION OF THE OFFSET POLICY.
 - ASSIST POTENTIAL VENDORS IN INTERFACING WITH THE INDIAN INDUSTRY.
 - ASSIST IN VETTING OFFSET PROPOSALS TECHNICALLY.
 - ASSIST IN MONITORING THE OFFSET PROVISIONS.
 - SUGGEST IMPROVEMENTS IN THE POLICY AND PROCEDURES.
 - INTERACT WITH HEADQUARTERS INTEGRATED DEFENCE STAFF AND SERVICE HEADQUARTERS.
- **OFFSETS BANKING.**
 - VENDORS WILL BE ABLE TO DISCHARGE THE BANKED OFFSET CREDITS FOR THE RFPS WHICH ARE ISSUED WITHIN TWO FINANCIAL YEARS OF THE DATE OF APPROVAL OF THE BANKED OFFSET CREDITS. CUT OFF DATE WOULD BE 1ST APRIL AND 1ST OCT. OF THE FINANCIAL YEAR. ILLUSTRATION OFFSET CREDITS BANKED ON OR AFTER 1ST APRIL 2009 WOULD BE VALID FOR DISCHARGE AGAINST RFPSs ISSUED UPTO 30TH SEPT.2011.
 - OFFSET CREDITS BANKED ON OR AFTER 1STOCT 2009 WOULD BE VALID FOR DISCHARGE AGAINST RFPs ISSUED UPTO 31ST MARCH 2012.
- **INTEGRITY PACT**
 - AN INTEGRITY PACT BE SIGNED BETWEEN GOVT.OF INDIA AND BIDDERS FOR ALL PROCUREMENTS OVER ₹100 CRORES(APXT \$20 MN).

OPPORTUNITIES

INDIAN AND UK INDUSTRY

- DEFENCE PROCUREMENT 30 BILLION USD IN NEXT 5 YEARS. INDIAN PUBLIC AND PRIVATE SECTORS PARTICIPATION IN DEFENCE PRODUCTION WILL BE SUBSTANTIAL AS PROCUREMENTS WILL BE UNDER CATEGORY “BUY AND MAKE”. AND ‘BUY GLOBAL’
- OFFSETS . MAY BE VIEWED AS OPPORTUNITY NOT OBLIGATION BY EXPORTING COMPANIES.
- ESTIMATED OFFSETS ; \$15 BN IN NEXT TEN YEARS
- OFFSETS AND GLOBAL OUTSOURCING REQUIREMENTS FOR CIVIL AND MILITARY AEROSPACE PROGRAMMES OFFER GREAT OPPORTUNITIES TO INDO- UK JVS, PARTNERSHIPS.

OPPORTUNITIES INDIAN AND UK INDUSTRY

- **CIVIL AEROSPACE**

IMPORT OF APPX 1100 CIVIL AND 500 GA AIRCRAFT AND ALSO SUBSTANTIAL RISE IN GLOBAL REQUIREMENT OF CIVIL AIRCRAFT IN NEXT 10-15 YEARS WILL REQUIRE OEMS TO ENLARGE THEIR SUPPLY CHAIN BASE. INDIA WILL BE A PREFERRED OUTSOURCING DESTINATION..

- **JOINT VENTURES, PARTNERSHIPS, COLLABORATIONS BY OEMS AND THEIR TIER 1 AND TIER 2 SUPPLIERS WITH INDIAN INDUSTRY IN LARGE ,SMALL AND MEDIUM SECTORS IN THE FIELDS MANUFACTURING, DESIGN ENGINEERING , MRO, TRAINING, SIMULATORS, R&D INFRASTRUCTURE, WILL BE GREAT OPPORTUNITY TO EXPLOIT THE INDIAN AND GLOBAL SUPPLY CHAIN REQUIREMENTS LEVERAGING LOW COST HIGH END AEROSPACE SKILLS AVAILABLE IN INDIA.**



- **INDIAN INDUSTRY REQUIRES HIGH END TECHNOLOGIES, QUALITY APPROVALS, SUPPLY CHAIN MANAGEMENT EXPERTISE TO WORLD CLASS STANDARDS, THAT CAN BE MADE AVAILABLE BY UK.**

OFFSETS AND GLOBAL MANUFACTURING REQUIREMENTS WILL HAVE FOLLOWING

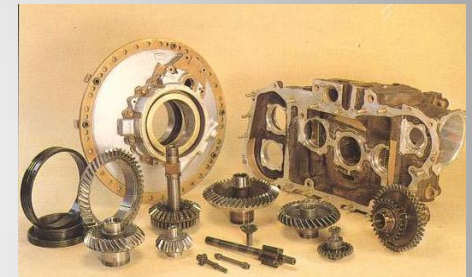


AEROSTRUCTURES

FUSELAGE, WING, CONTROL SURFACES, DOORS, CANOPY, WIND SHIELD, ETC.

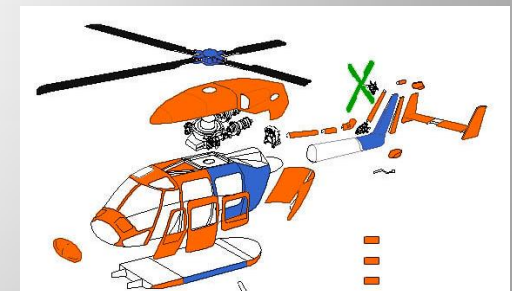
COMPONENTS

AIRFRAME MACHINED/SHEET METAL COMPONENTS
AERO ENGINE COMPONENTS – BLADES, COOLING VESSELS, DISCS, SHAFTS, GEAR BOX, TEST BEDS, FASTENERS, ETC.



COMPOSITES

BODY STRUCTURES, PANELS, AIRCRAFT INTERIORS, METAL HONEYCOMBS, CONTROL SURFACES, ETC.



MANUFACTURING

COMPONENTS, ACCESSORIES & SYSTEM COMPONENTS EXAMPLE HYDRO MECHANICAL, AVIONICS, NAVIGATION, RADARs, ECS, WHEEL / BRACKES, ETC.

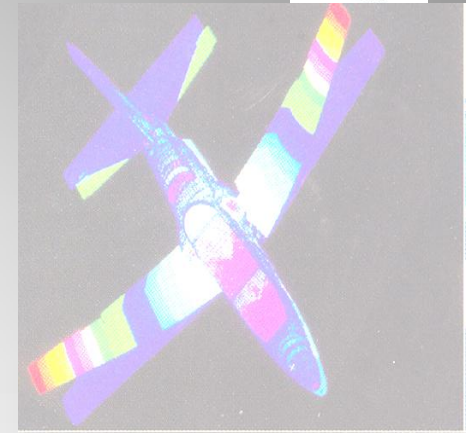
DESIGN AND ENGINEERING

AEROSTRUCTURES

- DESIGN ANALYSIS
- METAL & COMPOSITE STRUCTURES
- CAD MODELING

AERO ENGINES

- DESIGN & ANALYSIS OF ENGINE COMPONENTS
- SYSTEM DEVICES, TEST BEDS, CFD ANALYSIS
- STRESS & FATIGUE ANALYSIS, PERFORMANCE ANALYSIS

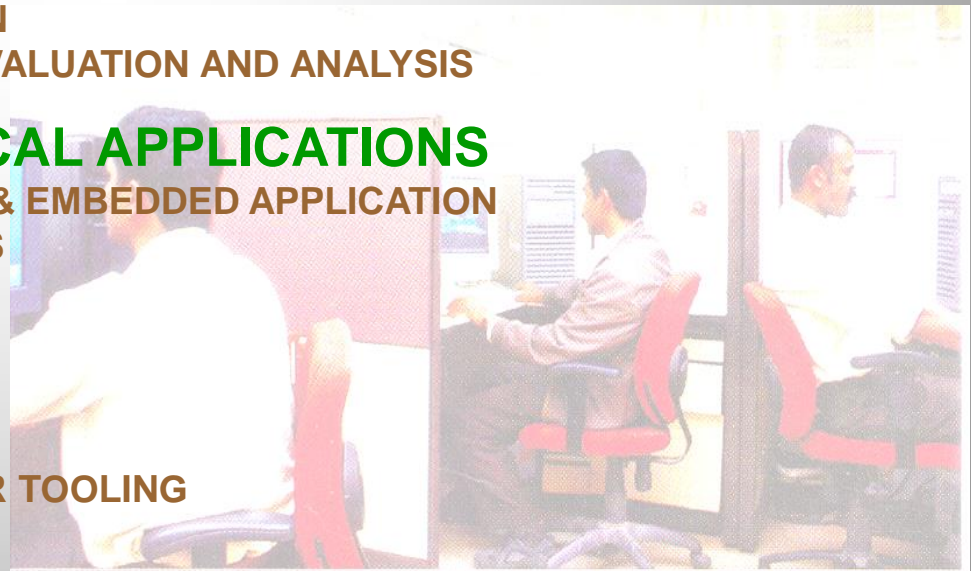


AVIONICS, ACCESSORIES AND SYSTEMS DESIGN & ANALYSIS

- DESIGN & ANALYSIS OF AVIONICS, RADARS, ONBOARD WEAPON AND NAVIGATION SYSTEMS, ETC.
- SYSTEM INTEGRATION AND SIMULATION
- AIRCRAFT SYSTEMS PERFORMANCE EVALUATION AND ANALYSIS

SOFTWARE FOR AERONAUTICAL APPLICATIONS

- REAL TIME SOFTWARE DEVELOPMENT & EMBEDDED APPLICATION
- COMPUTER BASED TRAINING MODULES
- SIMULATORS, ETC.
- TECHNICAL PUBLICATION



TOOLING

- JIGS , FIXTURES & REFERENCE MASTER TOOLING
- CUTTING TOOLS
- TEST EQUIPMENT, GHE & GSE

UK AERO ADS INDIA.



- ESTABLISHED IN 2009 AT BANGALORE AND NEW DELHI
- PURPOSE :
 - SETTING UP MEMBER COMPANIES' OPERATIONS IN INDIA.
 - BUILDING A DISTRIBUTION CHANNEL.
 - IDENTIFICATION OF POTENTIAL CUSTOMERS AND PARTNERS.
 - DUE DILIGENCE ACTIVITIES.
 - DISSEMINATION OF MARKET INTELLIGENCE AND OPPORTUNITIES.
 - PROMOTION OF PRODUCT AND SERVICES.
 - RAISING PROFILE OF MEMBER COMPANIES AT TRADE SHOWS, CONFERENCES, SEMINARS, INDIAN (INDUSTRY ,TRADE ,COMMERCE) CHAMBERS.
 - ARRANGE INTERACTIONS WITH INDIAN INDUSTRY, ACADEMIA, R&D ORGANISATIONS.
 - EXPANSION OF MEMBER COMPANIES REACH GLOBALLY.
 - ENSURING MEMBER COMPANIES' VOICE REACHES THE TARGET AUDIENCE BOTH AT INTERNATIONAL FORUMS AS WELL AS INDIVIDUAL ORGANISATIONS.

UK AERO ADS INDIA



- ADS WITH THE SUPPORT OF UKTI, AND IN PARTNERSHIP WITH UK REGIONAL TRADE ASSOCIATIONS, AND OTHER SECTOR TRADE ASSOCIATIONS AND DEVELOPED ADMINISTRATIONS OPENED A REPRESENTATIVE OFFICE IN BANGALORE. LOCATED IN A MOST PRESTIGIOUS ADDRESS OF BANGALORE AT CONORDE TOWERS, UB CITY AT LEVEL 15, IN THE PREMISES OF REGUS WORLD'S LARGEST PROVIDER OF WORKPLACE SOLUTIONS..
 - LOCATION: CITY CENTRE, BUSINESS PARK LOCATION, SERVICED APARTMENTS IN UB CITY COMPLEX, FIVE STAR AND OTHER HOTELS IN PROXIMITY.
 - ON SITE: 24 HOURS ACCESS, BUSINESS LOUNGE, MEETING ROOMS, SECURE UNDERGROUND PARKING, PANTRY, LOUNGE AREA, ROUND THE CLOCK SECURITY, COURIER SERVICES, FAX, PRINTING AND PHOTO COPYING FACILITIES. ETC.
 - TECHNICAL FACILITIES: HIGH SPEED INTRNET ACCES, .VOICEMAI, .VIDEO CONFERENCING CAN BE ARRANGED AT NEARBY REGUS LOCATIONS.
 - UK AERO OFFICE IS HEADED BY ASHOK SAXENA, DIRECTOR UK AERO, ADS.
 - ADS PRESENCE IN NEW DELHI IS THROUGH A CELL HEADED BY COL.(RETD.) GOBINDER SINGH, REGIONAL DIRECTOR SOUTH ASIA. THIS CELL IS NOT ABLE TO PROVIDE ANY OFFICE SUPPORT TO VISITING UK COMPANIES BUT IS ABLE TO PROVIDE HELP AND ADVICE ON POTENTIAL BUSINESS OPPORTUNITIES AND ALSO FOLLOW UP ANY POTENTIAL LEADS.
- UTILISATION OF FACILITIES AND SUPPORT FROM INDIA REP OFFICE AND CELL AVAILABLE TO ADS MEMBERS ONLY.**
- OPEN TO MEMBER ADS COMPANIES IN UK AND AFFILIATE MEMBERSHIP TO INDIAN COMPANIES

ADS INDIA MEMBERSHIP



- **OPEN TO ADS MEMBERS IN UK AND AFFILIATE MEMBERSHIP TO INDIAN COMPANIES.**
- **UK COMPANIES:**
- SERVICE CHARGES: £GBP 2500+VAT PAID ANNUALLY IN ADVANCE 1st APRIL OR PRO- RATA BASIS FOR ANY PART OF THE YEAR TO COVER ADMINISRATIVE COSTS AND USE OF OFFICE.
- LOCAL SERVICES : USE OF OFFICE ADDRESS, HOT DESK FACILITY AS A TEMPORARY BASE. MEETING ROOMS AT ADDITIONAL CHARGE.TELEPHONE, FAX, PRINTING ETC AT ACTUAL COST.
- UTILISATION OF SERVICES OF UK AERO INDIA OFFICE MANAGER £600 PER DAY IN SUPPORT OF PARTICIPANT'S ENGAGEMENT IN FOLLOWING ACTIVITIES;
 - ORGANISING VISITS TO FURTHER DEVELOP CONTACTS MADE BY OFFICE FOR BUSINESS DEVELOPMENT.
 - ADVICE ON ASPECTS OF JOINT VENTURES AND STRATEGIC ALLIANCE DISCUSSIONS
 - ADVICE AND ASSISTANCE IN NEGOTIATING CONTRACTS.
 - NETWORK BUILDING ;MARKETING SERVICES;SALES;

INDIAN COMPANIES;

- SERVICE CHARGES: £1000 PAID ANNUALLY IN ADVANCE 1st APRIL OR PRO-RATA BASIS FOR ANY PART OF THE YEAR.
- SERVICES; REPRESENTATIVE SERVICES,DISSEMINATION OF INFO ON OPPORTUNITIES IN UK MARKET,BUSINESS DEVELOPMENT
- ADVICE ON COLLABORATION OPPORTUNITIES,POTENTIAL CUSTOMER,DISTRIBUTOR,OFFSET PARTNERS
- COMMUNICATION WITH SPECIAL INTEREST GROUPS

SUMMARY



- INDIAN AEROSPACE MARKET IS POISED FOR UNPRECEDENTED GROWTH IN BOTH MILITARY AND CIVIL AVIATION.
- MILITARY AVIATION.
 - MILITARY AVIATION WILL INVOLVE HUGE IMPORTS FROM UK, FRANCE, SWITZERLAND, GERMANY, USA, RUSSIA, ISRAEL. ESTIMATED COST; \$50-100 BILLION IN NEXT 10-15 YRS
 - OFFSETS \$20-30 BILLION.
- EXPORTING FOREIGN COMPANIES WOULD REQUIRE INDIAN INDUSTRY TO PROVIDE COMPETENT INDIAN COMPANIES TO WORLD CLASS STANDARDS TO MEET OFFSET REQUIREMENTS IN MANUFACTURING, ENGINEERING, MRO, TRAINING, ETC. TODAY IT DOES NOT MEET THE REQUIREMENT IN FULL MEASURES.
- SUPPLY CHAIN FOR INDIGENOUS PRODUCTION OF AIRCRAFT, AEROENGINES, SYSTEMS, EQUIPMENT FOR INDIAN COMPANIES IN PUBLIC AND PRIVATE SECTORS WOULD FALL SHORT IN CAPACITIES AND COMPETENCIES.
- UK AEROSPACE INDUSTRY WITH TURNOVER OF £22.2 BN, SECOND ONLY TO USA AND EXPORTS MAKE 70% OF UK AEROSPACE SALES OF WHICH 30% ARE DEFENCE.
- UK CAN OFFER INDIAN COMPANIES BEST TECHNOLOGIES, PRODUCTS, SERVICES SUPPLY CHAIN MANAGEMENT IN THE FORM OF PARTNERSHIPS, COLLABORATIONS, JVs INCLUDING BOTH EXPORTS AND IMPORTS.
- CIVIL AVIATION.
 - IMPORT OF 1100 COMMERCIAL AND 500 GA WOULD REQUIRE AIRBUS, BOEING, EMBRAER, BOMBARDIER, ENGINE AND SYSTEMS OEMS WOULD REQUIRE STRONG GLOBAL SUPPLY CHAIN. UK-INDIA SUPPLY CHAIN CAN PLAY A MAJOR ROLE GLOBALLY.

SUMMARY



- INDIA WILL EMERGE AS GLOBAL/REGIONAL MRO HUB LEVERAGING COMPETITIVE COST, TALENT POOL, CAPABILITIES, GEORAPHICAL LOCATION, LARGE FLEETS OF COMMERCIAL AIRCRAFT, GENERAL AVIATION AIRCRAFT, CIVIL HELICOPTERS.
- UK HAS A VERY STRONG MRO BASE FOR AIRCRAFT, CIVIL AERO ENGINES, SYSTEMS AND ACCESSORIES.
- INDIAN MRO INDUSTRY IN A NASCENT STAGE. UK MRO INDUSTRY HAS BIG OPPORTUNITY TO ENTER THIS BUSINESS AS FDI LIMITS ARE VERY LIBERAL.
- UK TRAINING AND SIMULATOR INDUSTRY CAN FIND USEFUL INDIAN PARTNERS IN FORMING, ESTABLISHMENTS FOR TRAINING OF PILOTS, TRAFFIC CONTROL PERSONNEL, TECHINCIAANS ETC TO INTERNATIONAL STANDARDS AND APPROVALS.
- AIRPORT INFRASTRUTURE.
 - PLANNED AIRPORT INFRASTRUCTURE IN UPGRADATION , GREENFIELD AIRPORTS, ATM, ETC AND INVESTMENTS UPTO \$100 BILLION IN NEXT TEN YEARS OFFER GOOD OPPORTUNITIES TO UK COMPANIES. FDI LIMITS ARE EXTREMELY LIBERAL AND POSITIVE.
- SPACE.
 - INDIA HAS VERY BIG PLANS IN SPACE TECHNOLOGIES COVERING COMMUNICATION, TV BROACASTING, IMAGERY, REMOTE SENSING, GPS BASED NAVIGATION SYSTEMS, RESEARCH IN SPACE, SOLAR CARONA, MOON, AND HUMAN SPACE FLIGHT, ETC. UK HAS SET GOAL TO INCREASE THE SPACE RELATED EXPORTS FROM PRESENT LEVEL 6 BN GBP TO £40 BN. INDIA OFFERS GREAT OPPORTUNITY TO UK SPACE INDUSTRY TO EXPORTS TO INDIA. INTERNATIONAL INNOVATION CENTRE, HARWELL SHOULD ENGAGE ISRO IN RESEARCH IN AREAS LIKE CLIMATE CHANGE ETC.

CONCLUSION

INDIA WITH ITS RAPIDLY GROWING ECONOMY IS EMERGING A HUGE AEROSPACE AND DEFENCE MARKET AND WITH ITS POTENTIAL, CAPABILITIES, POOL OF TALENT, KNOWLEDGE, SKILL, BROAD BASE UPCOMING INFRASTRUCTURE, LOW COSTS AND ENORMOUS OPPORTUNITIES, CAN EMERGE AS A GLOBAL HUB FOR AEROSPACE IN MANUFACTURING, DESIGN & ENGINEERING, MRO ACTIVITIES, CIVIL AVIATION AND SPACE, UK INDUSTRY CAN BECOME A PARTNER IN THESE EFFORTS TO MUTUAL BENEFITS AND ADVANTAGES.

THANKS Q & A

