

RESTRUCTURING DEFENCE FORCES

The modernization of defence forces is a continuous process based on threat perception, operational challenges and technological changes to keep the Armed Forces in a state of readiness to meet the entire spectrum of security challenges. In order to reduce arms dependency and promote indigenous manufacturing of defence equipment, a comprehensive revamped 'Make and Innovation' procedure has been introduced in DAP-20 to facilitate indigenous design and development of defence equipment by private participation both with Government funding and industry funding.

While giving reply in Lok Sabha, Union Minister of State for Defence, Ajay Bhatt informed that a series of Positive Indigenization Lists of defence weapons & equipment which would not be imported from abroad have been promulgated. 1st Positive Indigenization List comprising of 101 items was promulgated in August 2020, 2nd Positive Indigenization List comprising of 108 items was promulgated in May 2021 & 3rd Indigenization List comprising of 101 items was promulgated in April 2022.

The impact of 'Atmanirbhar Bharat' in defence manufacturing is:- In line with the budget announcement for2022-2023 of allocating 25 per cent of the Defence R&D budget for industry led R&D, 18 major platforms have been approved by the Government for industry led Design & Development under Make I, Make II, SPV Model and iDEX routes. An innovation ecosystem for Defence titled Innovations for Defence Excellence (iDEX) has been launched in April, 2018 to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, Start-ups, Individual Innovators, R&D institutes and Academia, and provide them grants/funding and other support to carry out R&D which has potential for future adoption for Indian defence and aerospace needs. So far, 125 problems have been opened, 136 start-ups have been engaged, 102 contracts have been signed. iDEX route of procurement have been simplified and timelines have been compressed from 2 years earlier to just 5 months by reforming the trial process. The Government has approved a Scheme with an outlay of Rs 498.78 crore (2021-22 to 2025-26) to push innovation and support start-ups in Defence & Aerospace sector. This will enable more than 300 start-ups to participate in the new design and development projects and also support 20 partner incubators. As part of the efforts to achieve self-reliance in Defence manufacturing and minimize imports by the DPSUs, a positive indigenization list has been notified by the Department. The list contains 2,500 imported items which have already been indigenized and 351 high value imported items which will be indigenized in next 3 years. Out of 351 items, 147 items have already been indigenized. Another list of DPSUs for indigenization of 107 Line Replaceable Units (LRUs)/Sub-systems of high value platform was notified on 28.03.2022. As on date, 4 LRUs have been indigenized; 5 LRUs are at trial stage and 31 LRUs are at design and development stage. An indigenization portal namely SRI-JAN has been launched in August, 2020 for DPSUs/OFB/Services with an industry interface to provide development support to MSMEs/Start-ups/Industry for import substitution. So far, more than 21,000 defence items, which were earlier imported, have been displayed on the portal. 388 private vendors have expressed interest in indigenizing more than 4,700 items and so far 410 items have been indigenized. Separate procedure for 'Make-II' category (Industry funded) has been notified to encourage indigenous development and manufacture of defence equipment. Number of industry friendly provisions such as relaxation of eligibility criterion, minimal documentation, provision for considering proposals suggested by industry/individual etc. has been introduced in this procedure. So far, 72 projects relating to Army, Navy & Air Force, have been accorded 'Approval in Principle'. 38 Acceptance of Necessity (AONs), 05 prototypes developed and 2 procurement contracts have been signed by the Services.



Why Visit Places of Worship?

Every year on international peace day, we take all children from our schools to different places of worship to inculcate in children a feeling that God is one, though the way to worship Him may be many,” said Touraj Moghbelpour, the founder-manager of Blossoms School, Bhubaneswar, Odisha. He was sharing his experience with the audience at a symposium on 'Places of Worship: The evolving nature and purpose' organised by the Office of Public Affairs of the Baha'i House of Worship, New Delhi, on August 29.

People flock to temples, mosques, gurdwaras and churches for succour; as these places of worship, they feel, connect them to the Creator. Khwaja Iftikar Ahmed, founder-president, Inter Faith Harmony Foundation, said, “While offering namaz in the mosque, if your shoulders don't rub with other devotees then the purpose of prayer is lost. There are two kinds of namaz, one which is performed mechanically, like any aerobic exercise, and the other is namaz-e-ishq, from where emerges ruhaniyat, spirituality, that is the kind which works.”

Places of worship can also bring about social transformation. One call from the influential mullahs during the Friday prayers in a mosque in Uttar Pradesh turned the tide in favour of government's polio eradication drive and brought

scores of members of the community to health centres to get their children inoculated against polio, something that they had been resisting all along, said K G Suresh, professor of journalism, in his talk. Langar seva in gurdwaras is another example of social transformation where people from all walks of life and communities break bread together, pointed out another participant, M M Verma, founder president, Interfaith Foundation, India. The flip side is that these places could become breeding grounds for fundamentalist tendencies. M D Thomas, founder director, Institute of Harmony & Peace Studies, said that places of worship are often visited by people of the same religion only and there are chances they may get confined to a certain ideology, making them insular and narrow minded. He proposed that all religious places should be thrown open to people of all faiths. “Let's turn places of worship into places of love and harmony. If this is not happening, then these places need to go,” he said. “Would God be pleased with gold-plated domes in places of worship housing his murtis while his children, sleep on the streets with no roof over their head?” he asked.

Khwaja Ahmed said that nothing can justify violence, but this happens sometimes due to the lack of attention by civil society, those in governance and, academia.

—MONA MEHTA

“It means, people who are in high and responsible positions, if they go against righteousness, righteousness itself will get transformed into a destroyer.”

—A P J Abdul Kalam

Bio-indicators: Crucial for maintaining environment

■ DR RAKESH KUMAR GUPTA

In developed as well as developing countries like India, U.S.A, China, etc, there is a remarkable progress at rapid pace that can be seen in every aspect of life; however, simultaneously it also cost degradation in the quality of environment. The cost of factories has been paid by air, water as well as soil that directly or indirectly are affecting all living organisms including human beings. Therefore, there is an intense need to monitor the quality of environment and raise the prevention of polluted environment. Now a day different scientific methods are available to detect any change in the quality of surroundings, however, most of these are either not commercially available and if so then are too expensive to be used by common people. Apart from scientific equipment, nature has tendency to call for its protection by bestowing us a unique way to access not only the changes (if any) in the environment but sometime helps to identify those environmental factor that has undergone marked change. This natural call is called as 'Biological indicators' or 'Bio-indicator'. Bio-indicators are organisms (such as lichens, birds and bacteria etc), that are used to monitor the health of the environment. Some organisms are very sensitive to pollution in their environment, so if pollutants are present, they may either change its morphology; physiology; behaviour; or could even die. The organisms or organism associations therefore are monitored for changes within their ecosystem. There is difference between Bio-monitoring and Bio-indicators. Bio-indicators qualitatively assesses biotic responses to environmental stress (e.g., presence of the lichen, Lecanora conizaeoides, indicates poor air quality) while biomonitors quantitatively determine a response (e.g., reductions in lichen chlorophyll content or diversity indicates the presence and severity of air pollution). There are three main functions of bio-indicators: 1. to monitor the environment (i.e., physical and/or chemical changes), 2. to monitor ecological processes, or 3 to monitor biodiversity.

1. Based on IUCBS Bio-indicators are of following types:

1. Microbial indicators: Micro-organisms play an important role for the assessment of surrounding environment. They can be used as indicators of aquatic as well as terrestrial ecosystem health. The bacterial species that have been used as indicators in monitoring environmental quality are Coliform, E.coli, Streptococcus sp., Pseudomonas sp., Vibrio sp., Clostridia sp., Bifidobacterium pseudolongum,

Arcobacter sp., Thiobacillus sp., etc. These bacteria can act as indicators of household waste (human and animal feces, household waste and other), heavy metal pollution or crude oils and other types of pollution:

i. Heavy metal pollution indicators: There are many strains of bacteria whose mere presence indicates heavy metal pollution. E.g. (a) Thiobacillus sp bacteria is a pollution indicator of mercury in marine environment. (b) Pseudomonas sp also acts as indicator of mercury pollution. (c) Serratia marcescens indicates presence of cadmium and lead.

ii. Faecal contamination indicator: Presence of (a) Coliform bacteria such as Streptococcus sp., Vibrio sp, E. coli, Clostridia sp., Bifidobacterium sp., Arcobacter burderi, A. Skirrowii etc. indicates the human faecal contamination in water bodies. E.g. (a) Streptococcus sp. act as an indicator of faecal pollution in water bodies such as lakes, rivers, estuarine etc. (b) Vibrio sp is an indicator of faecal pollution in water bodies.

iii. Waste water pollution: Presence of some bacterial strains such as Streptococcus sp, Pseudomonas aeruginosa and Salmonella sp clearly indicates the household waste water pollution.

iv. Oil pollution indicators: Chromatium sp act as bio-indicator of environment pollution cause by crude oil.

2. Plants as Bio-indicators: Due to industrialization and urbanization, the problem of contamination of water and water pollution has intensified. Plants are immobile and rapidly obtain equilibrium with their natural surroundings therefore provide valuable information to predict the status of aquatic environment. Some of the plants that indicate specific environmental pollution are:

(a) Plants such as Petunia, Pinto Bean, Green Bean, Tobacco, White pine, Watermelon etc indicate ozone pollution in environment.

(b) Annual weeds and short lived perennials like Amaranthus, Chenopodium and Polygonum etc. grow better in overgrazed areas. They are the indicators of overgrazing.

(c) Abundance of Eichhornia indicates sewage and heavy metal pollution of water.

(d) Decrease in the populations of mosses (Sphagnum, Bryum) and lichens (Parmelia) generally indicates air pollution by SO₂, NO₂, fluorides and HCl.

(e) Equisetum sp. indicates presence of gold in soil.

(d) Absence of some of bryophytes such as

Sphagnum and Bryum indicates atmospheric SO₂ pollution.

(e) Lichens (symbiotic association of an algae and a fungus) grow together; are indicators of pollution cause by sulphur dioxide. Usually Leafy lichens tolerate some air pollution and crusty lichens can survive with higher levels of pollutants, however; if no lichens are present, it usually indicates heavy air pollution.

(f) Scenedesmus obliquus: Colonies of Scenedesmus obliquus were used for determining cadmium and lead pollution in river basin in Thailand and Federal Republic of Germany.

3. Planktons: Planktons react rapidly to ecological changes and are viewed as excellent indicators of water quality and trophic conditions due to their short time and rapid rate of reproduction. The rate of reproduction in plankton increase many fold in water body having contaminated with phosphorous and Nitrogen, thereby indicates water pollution of these pollutants. Some planktons act as indicator of heavy metal pollution for example

(a) Chlamydomonas reinhardtii was sensitive to cadmium, methyl mercury, and lead. (b) Trichotria indicates heavy metal as well as phosphorous pollution in lakes. (c) Cladocerans (Bosmina, Moina, and Daphnia) and copepods (Phyllodiaptomus and cyclops) presence indicate polluted water body.

4. Invertebrates: Invertebrates fauna inhabit soil as well as water bodies and play an important role in food chain by converting soil into fertile cast, feeding on dead decay organisms, on protozoans, and eaten by higher trophic level organisms. Due to dumping of waste in soil as well as water bodies, both terrestrial and aquatic life has been threaten to marked level. These organisms survive in optimal environmental conditions and any remarkable changes in surrounding threaten their life and thereby clearly indicate the level of damage done to terrestrial or aquatic habitat. For example (a) Earthworm: The density and biomass of earthworm is influence by heavy metals therefore acted as indicator of heavy metal pollution.

(b) Orders Ephemoptera: This include Mayflies, stoneflies and Caddisflies etc and are all pollution sensitive taxa. They are well known worldwide for their sensitivity to decreasing depletion of dissolved oxygen and therefore indicate water pollution.

(c) Chironomid larvae: Presence of Chironomid larvae indicates the aquatic pollution and water unfit for use.

(d) Honey bee: Decrease in honey bee popula-

tion depicts presence of toxic molecules in environment.

(e) Collembolan: Their population exhibits dramatic reduction in population in soil acidified by chemical fertilizers or pesticides, thereby indicates soil pollution.

5. Fishes: Fishes are on the most dominant vertebrates in water bodies. Some fishes are pollution tolerant while other confine to very narrow range of environmental conditions. Some of the important fishes that act as biological indicators are as:

(a) Acipenser: A highly migratory species, the decline of the Lake Sturgeon has been attributed to the widespread damming of rivers, pollution, siltation, and overfishing.

(b) Garra sp and Labeo sp: Besides many species that indicates heavy metal pollution Garra and Labeo hold its important value. Presence of heavy metal leads to degeneration of their gills, remarkable change in morphology as well as number of formed elements.

6. Amphibians: Frogs are also Bio-indicators of quality of environment and changes in environment. Amphibians' thin skins help them drink and breathe, but also make them susceptible to environmental contaminants, particularly agricultural, industrial, and pharmaceutical chemicals. For example Southern Leopard frog deformed limbs are formed in presence of methoprene pesticide in surrounding environment.

7. Reptiles: Snakes and Snapping Turtle indicate Organochlorine pollution. They accumulate heavy metals in their body and die soon.

8. Birds: Some of the important species of birds that indicate heavy metal pollution are: Pica pica, Columba livia, Passer domesticus, Turdus merula and Accipiter gentilis that indicate pollution caused by heavy metals such as Pb, Cd, As, Sb, Ge, Ti and Hg.

Unlike mammals that can widely distributed and mostly adapt to different types of environment, some of organisms i.e. Bio-indicators are confine to optimal conditions and therefore represent the type of environment they inhabit. Their sudden appearance or disappearance clearly indicates the change in environmental factors and therefore the quality of air, water or soil thus act as natural call for revival of environment that otherwise might be prove harmful in future.

(The author is Lecturer in Zoology at GHSS Ramgarh, 811141).

De-weeding roots of corruption

■ MOOL RAJ

The news regarding the tragic incident that happened at the leading maternity hospital of the valley wherein parents lost a newborn baby just for the want of a bribe of two hundred rupees by the security guards might be still roaming and resounding in the society but it might have traumatized the to be parents and could have pierced the hearts of already parents. Expecting mothers might think a thousand times before visiting such a hospital. Such Incidents mostly at the maternity hospitals are not new and every individual must have gone through this 'Chai Culture' (graft culture) who has visited these hospitals. Parents and relatives of the newborn are kept hostage by the money demanding staff till they do not get their share. For the poor such demands can prove disastrous and painful as in the stated case. This sorry state of affairs is a continuous process and there is no end to it. The graft culture or the 'Chai culture' is not prevalent only in hospitals but has taken deep roots in other departments too. A file in an office is not processed for months together for the want of bribe from the following person thereby subjecting it to high grade torture and humiliation. Some people have died but their files have not seen the dawn of completion. People have been seeing losing their emotions for their work and documents to be processed and completed. Unnecessary glitches are created in documents and delaying tactics played by the greedy bribe demanding mafia in departments. Was perturbed to see a young man weeping outside an office some ten years ago, as he failed to get his file cleared even after three months due to official apathy and neglect. The practices of corruption in the form of bribes and graft are not the only problem that has strengthened its roots in institutions and offices. The misuse of chairs to adjust and accommodate nears and dears has been breeding in them for years together. There are a lot of instances where it was observed that merit was killed to favour and adjust a recommended candidate. It is hidden to none that in the past under the garb of malpractices, hefty amounts were taken from the underserving and blue eyed candidates to adjust them and the sky-touching merit was buried into the deep earth. The misuse of power and institutions by the bosses for their selfish and materialistic interests is open to all. They have used every opportunity and option of their working department to adjust their favorite candidates. The very norms of adjustment and employment in different departments under various schemes of recruitment processes were thrown into the wind in the past just for the want of money. The offices were used as being the personal property of officers resulting in a social norm were the well off and those having access to these heartless

Babus managed to get their illegal and unjust things done while the poor meritorious deserving and excellent lot remained miserably watching such things happen in front of their eyes. The helpless society couldn't raise its voice against such corrupt influential officials. The bosses made castles with this illegally earned money and intercedes managed to grab the opportunity to fill their pockets. Corruption is cancer for the progress and prosperity of communities. It stagnates and impairs the very basic value and essence of life. It leads to procurement of hatred and chains morality. The thinking of purity and social work are seen as criminal acts. The concept of helping others as a noble cause and serving humanity are thought of as aliens in a corrupt environment. Work culture and timely actions and delivering of services are seen as burdens. It eats away even the strongest roots of advancement of nations and their growth. Those who pay are encouraged and given value and respect while those who cannot or resist such wrong doings are looked upon as penurious and parsimonious. The ethical values can degrade to such a low that an employee can tear apart the clothes of a father of a newborn baby for the want of money and will not feel an iota of shame in doing so. There are many reasons for people resorting to corrupt practices in the society. The foremost being that people want to live a lavish and luxurious life. They dream of things that are beyond their reach and budget. Seeing others enjoy, they use every illegal and unfair means to be at such a level. They want to live in a position thought to be the best in social standard. They are suffering from the disease of doing less and dreaming of getting more. They succumb to false reputation perception and sell their conscience just for the lust of living a lavish life. They suffer from the syndrome of personality crisis while being with the more earning people. Their soul satisfaction level is zero and in order to satisfy its unending demands they greed off of more and more. The normalization of corrupt practices in a society has far reaching consequences. It has a detrimental effect on the fabric of a society. It will lead to negativism and denial. The question remains how this normalization can be stopped and eliminated from a society. It requires awaring people about its ill effects and impacts that it will have on the future generations. It needs reasonable and sincere efforts from the society so that individuals practicing and promoting it are exposed and shamed. The main tool is generating a public opinion against this evil and people denouncing it out rightly. To curb it at the institutional level an active and power-versed organization is the need of the hour. The organisation must have in it honest, dedicated and delivering officers and officials. The quality lot who have the potential and are capable of changing the tide and

who would not succumb to influence and pressure should be assigned the charge. Officials and officers who have a clean service record and have no complaints of corruption must only be adjusted in such an organisation. Within the organisation the officers and officials may be put under strict and continuous surveillance of an independent team to keep them away from wrong doings. Among the government employees trapped ones, be it a class IV or a Gazetted officer should be prosecuted on an urgent basis. Their track records checked and if proven guilty must be shown the door as early as possible so that other employees are served a lesson. To curb the menace of corruption at the institute level and to keep a vigil the government has established the organization of Anti-Corruption Bureau(ACB). Under the supervision of its director Anand Jain the anticorruption bureau has done a marvelous and commendable job from the last many years. Many officials working in various departments were caught red handed while taking bribes. Many Patwaris, Station house officers and engineers were sent to jail after being trapped. None was spared against whom complaints were received. The files of many corrupt officials and officers have been processed on fast track basis to take them to logical end and those who have misused the public exchequer for personal benefits and misused their chair and power to benefit blue eyed and favorites have been put to task. The timely and prompt action by the department has won the faith of the public. A drastic change is visible at the ground level and those officials who were habitual of the corrupt practices have left it fearing consequences. In the past big fishes would easily get away while the little would be caught. That practice has ended and justice is being served with full might. Every verification is done on merit and justice is being served at its highest level. In swift action the culprits responsible for the death of the newborn have been arrested and sent to jail. This happened because there was a public outcry and everyone talked of it as an act of barbarism and murder. People were crying for justice to the parents who lost the baby but the question remains will society from now and onwards set precedence and raise a voice against such practices and report them to the concerned authorities or they will watch them happening till it costs another mother a newborn. Will this heinous crime really shake the conscious minds in the society or they will act as mute spectators till another poor father will see his child dying for the want of money.

(The author is Lecturer Govt HSSS Khellani, Doda).

Strengthening fight against mosquitoes

■ VINOD CHANDRASHEKHAR DIXIT

World Mosquito Day is observed every year on August 20 to commemorate Sir Ronald Ross's discovery in 1897 that Anopheles mosquitoes transmit the malaria parasite to humans. Malaria is a mosquito borne infectious disease affecting both humans and animals, causing millions of deaths annually. The focus of the event is to highlight the need to maintain the efforts towards elimination of malaria and seek commitment from political parties and other stake holders. Despite the efforts of global community, malaria epidemic is far from being completely eradicated with a gradual increase in the number of affected and dead, every year. It is estimated that every two minutes a child dies due to malaria, across the globe. Malaria has also severe consequences on the health and economy of a nation. Observance of the World Mosquito Day reignites the resolve of governments and general public to fight malaria and seek its elimination. It also helps the campaigns in garnering technical, logistical and financial support to push forward the fight against malaria. The first symptoms of malar-

ia appear within ten to fifteen days of getting bitten by an infected mosquito. Initial symptoms include high fever, chills, weakness and headache. When untreated, the symptoms can escalate causing serious illnesses, leading to death. Today, the best way to prevent the disease is to avoid bites by infected mosquitoes. The most important method of preventing malaria is by controlling the spread of its carriers, that is Anopheles mosquitoes. There are around four hundred species of Anopheles mosquitoes, out of which only 30 are potential carriers of malaria parasites. Mosquitoes, those tiny blood-sucking insects, are responsible for transmitting serious diseases such as malaria. With no vaccine currently available, malaria - an ancient disease that began afflicting humans from the beginning of agriculture and modern civilization - remains a deadly threat to people around the world. Malaria disease is one of the worst public health crises the country has ever faced, endangering one in every six Indians. Death can occur in as little as three days if an FP infection is not properly treated. Nearly 50,000 people die in the country every year due

to complications of the disease. While travelling to a malaria endemic zone, anti-malarial tablets may be prescribed to prevent contracting malaria. Immediate diagnosis and treatment can help prevent complications and death. Every time a case of malaria is reported, a mapping exercise is undertaken to intensively fog and spray the pesticides in all surrounding areas. Malaria is preventable as well as treatable, yet the disease claims nearly half a million lives each year. The deaths are mainly attributed to not taking preventive measures and delayed diagnosis. People in lower economic class and remote areas; don't understand the risk of malaria, unless they get infected. Not using mosquito nets or insecticides only escalates the spread of disease. Though an infectious disease, whether a person contracts malaria or not, also depends substantially on how clean the surrounding environments are. One of the major causes of mosquito breeding is water stagnation. Its rather shocking that Indians having knowledge about the excellent benefits of Neem and coudung, has not done any research towards

the same, in the prevention of malaria.

According to the last World Malaria Report released on 19th November 2018, an estimated 219 million cases of malaria have been reported in the preceding year; causing nearly half a million deaths globally. African countries were the most affected, by being home to 92 per cent of the global malaria cases and 93 per cent of casualties due to malaria. Though, India accounts for only 4 per cent of total malaria cases reported globally, unfortunately it also accounts for 52 per cent of the total malaria deaths caused outside the African region. India has set a target of eradicating malaria by year 2030. Despite the commendable efforts by the World Health Organization, respective governments and other relevant bodies in fighting malaria, the global campaign against malaria is facing an acute financial crunch. Eliminating malaria is, and should be the top priority. Grand pronouncements are meaningless as long as manipulated data twist our knowledge and bad governance impedes genuine attempts to fight the disease.