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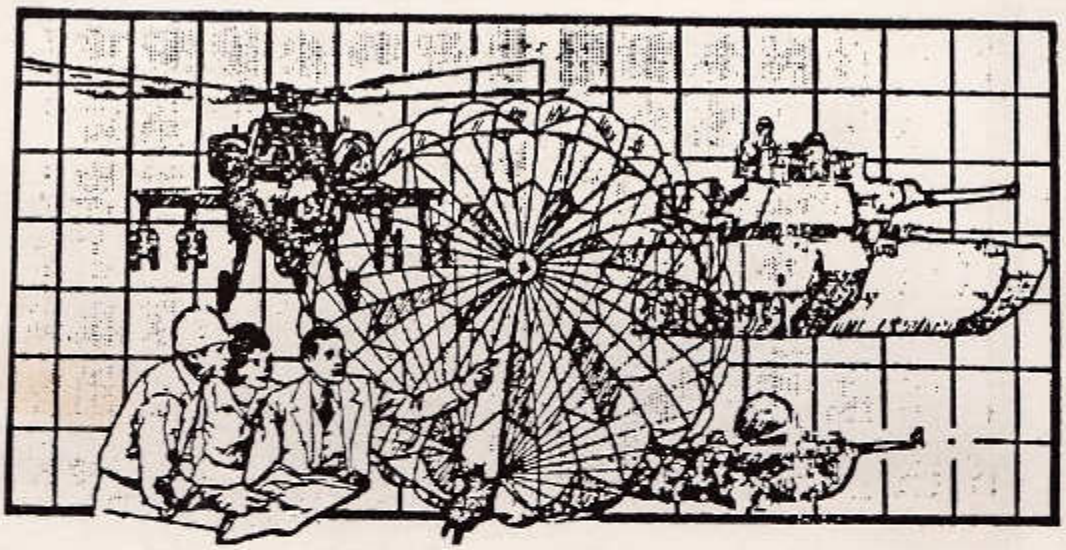

Drug Abuse And Prevention In Armed Forces: The US Experience

Drug Abuse & National Security in Pakistan Joint Study By Mairaj Husain & Toaha Qureshi

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Drug Abuse and Prevention in Armed Forces: The US Experience

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We also gratefully acknowledge the help and cooperation of Mr. Mairaj Husain, Chairman, Pakistan Narcotics Control Board (PNCB) and Mr. Toaha Qureshi, Director Planning and Programme (PNCB) in making ours a meaningful effort.

We hope to publish further such studies in collaboration with the PNCB and the various US agencies concerned.

The problem of drug abuse may not be relevant to the armed forces of less developed countries. Nonetheless a thorough and scientific study of it would be in order as a preventive and hopefully a preemptive measure against such abuse in the future.

—Editor.

In a good standing military establishment what cannot be cured must never, never be endured: in more positive terms, thoroughly diagnosed and expertly treated or else its whole disciplined structure would collapse. The US DoD (Department of Defence) must therefore be commended for launching a full-scale investigative, diagnostic and therapeutic campaign against drug abuse and to let others benefit from their experience. Modern warfare is the child of modern technology that, in turn, is the product of the human mind as opposed to the muscle. Likewise the modern mechanized battlefield—except in the closing stages of physical engagement and assault—is a singularly lonely place where soldiers operate not in serried ranks, drawing strength from mere physical proximity, but in small sections and groups of two or three minding their complicated

machines. Machines have indeed come to dominate the art of warfare much in the same way as all other departments of life. This means more mental stress and strain which in turn could mean an increasing dependence on drugs and tranquillizers to relieve the burden. The problem may not exist for the less developed, less mechanized and morally more reinforced armies of the Third World, but can arise as these armies develop and modernize themselves. The problem merits a thorough and scientific examination if only as an academic exercise.

Another major contributory factor in the alarming rise of drug abuse in the Western societies, including their military establishments, has been the erosion of traditional values and moral standards infinitely more rapidly than in less developed societies. The growing interrelation between rising living standards and falling morality is one of the major paradoxes of our age and perhaps one of the gravest threats to its stability. Relatively less developed and more impoverished societies generally have a higher moral calibre and stronger religious faith. Could material poverty be possibly considered as a sine qua non for moral strength? Whether the answer to this question is yes or no, it must be found, squarely faced and a judicious balance struck between material advancement and moral deterioration and vice versa.

In his statement (reproduced in full elsewhere in this issue) John H. Johns, deputy assistant secretary of defence for health promotion thus observes:

"We believe the long-term solution to drug and alcohol abuse will require a fundamental change in the values and norms which govern lifestyles in our society. The bulk of drug abuse in the military can be attributed to lifestyles associated with the youth culture of the nation. Alcohol abuse, especially drunk driving, exists to a great extent because society tolerates it, the use of alcohol by teenagers is glamourized..."

It would be hardly enough therefore to relate and confine drug eradication efforts to the military only. Of course, operating within the steel frame of military discipline and service regulations it would be much easier to achieve the desired result there within much lesser time. But unless the problem is attacked at the source and, at the most formative stage of civilian life, it would continue to reappear in one form or another. Its impact on the military establishment, easily the most sensitive vital and sabotage-prone department of the government, would be invariably more terrifying than on any other sphere of the society.

The DoD has undertaken a long-term project to change the values, norms and attitudes of the military community so that the culture will promote mental and physical well-being conditions "antithetical" to drug and alcohol abuse. The emphasis, the US defence department places on the eradication programme is indeed a most impressive one and should serve as an example and eye-opener to other defence departments everywhere in the world even where the evil of drug abuse is not as rampant or prominent.

Promoting healthy lifestyles to discourage drug and alcohol abuse is one aspect of a comprehensive approach to health promotion in 1984. "This objective is to establish an integrated, chain-of-command emphasis on the interactive effects of lifestyles, work settings and environment on health, well being and productivity within the DoD community."

A wider aspect of the task set is to extend it progressively to all categories of defence personnel including civilians, reservists, retirees and their families.

Before going into the details of the command and control aspects of the anti-drug and alcohol programme a quick survey of magnitude of the problem in its existing, size and form would be in order. The majority (about 63 per cent) of drug addicts in the military are male, single and under 25 years of age. Cannabis is the illicit drug most often used followed by heroin, cocaine and hashish. The prime cause of drug addiction, in most cases, is an early exposure to alcohol not only benignly condoned but often enough patronized even among school-going boys and girls. Social drinking looks innocent enough but is nonetheless the main culprit—the principal inducement and introduction to the make-believe world of drugged nirvana and ecstasy. Once the inhibitory factor goes and the doors of drugged perception are thrown open one plunges headlong into the surrealistic domain full of alluring images and seductive fancies. These in time may and do often enough turn into horrendous visions of despair and death—into veritable monsters which though wholly illusory are real enough for the unfortunate addict to drive him to all kinds of mad, suicidal acts.

Cigarette-smoking, environmentally accepted and socially approved is the other equally vicious villain in the sordid drama of drug-taking. It is the largest single factor in the alarming rise of heroin and marijuana abuse. Compared to alcohol it is also easier to indulge and can do without the frills of drinking, most of all a congenial, convivial company without which a drink partly could be a most boring affair indeed. Unlike alcoholism a vice collectively indulged in generally, drug-taking is a highly individualistic affair. A hemp or marijuana smoker's unlike an alcoholic's is an almost solitary quest for deliverance in which at best two would be company but more would be crowd. Drug-abusers could therefore be more prone to the insidious machinations and blackmail by agents provocateurs and fifth columnists than alcoholics. The very air of privacy surrounding drug indulgence poses a greater risk to military security. Drug-related criminality and delinquency may also have a direct impact on the security and welfare of the military personnel and installations.

According to a recent survey by the DoD following illicit drugs were received in quantities given against each during the course of a single year: heroin—4.5 metric tons; cocaine—40-48 tons; cannabis—over 9,000 tons for an estimated 22.5 civil and military users. It would be seen that cannabis (charas, hemp, marijuana or ganja) is the mostly widely used. It is because it is cheaper, more readily available and hardly carries, even in faith-oriented, morally bound societies, the social stigma that alcohol does.

In the Peshawar Kissa Khawani Bazar, for instance, many a cafe and tea shop in the not too distant past, dispensed charas cigarettes and clay-pipes that were openly smoked and handed round as a community indulgence. Such restaurants are not easy to come by now, but none can vouch for the disappearance of the vice itself. Charas-smoking and niswar (snuff) addiction had been a part of the frontier life through years and it would be very naive to believe that these would have disappeared completely.

Compared to the quantities smuggled into the US during the period under review the following were seized by the various enforcement agencies: heroin 1 metric ton;

cocaine 349 Kg; cannabis—70 tons. It would be seen that the quantities seized are just a fraction of those actually smuggled. This is a truly alarming state of affairs and shows that the dragnet, even if wide, is full of holes.

The 1980 worldwide survey of alcohol and drug abuse in the armed forces confirmed that alcohol and marijuana (charas) remained the most prevalent drugs of abuse in the military, particularly among the young enlisted personnel. The first major initiative to improve DoD programme, according to John H. John's statement, was the development of the capability to detect marijuana by urinalysis. This is to help the field commanders to detect marijuana use. The DoD now has the capability to detect seven drugs through urinalysis. In 1980 the Court of Military Appeals also upheld the principle that under specific circumstances results of biochemical tests could justify disciplinary action. The Court ruled in a recent case that urinalysis testing "fell within the legal context of both reasonable searches and inspections and did not violate the Fourth Amendment."

"Mandatory" urinalysis may be ordered to determine a member's "competency" for duty or anyother time when a commander wishes to determine whether drug abuse is a factor in an "individual serviceman's behaviour..."

"Detection" and "deterrence" have been the two main planks of the DoD's anti-drug abuse programme. Detection alone would be hardly enough unless it is followed up by appropriate corrective measures and treatment of the individual to deter him from the addiction in the future. The aim is not just to catch hold of the delinquent and punish him but to make a better person out of him fit for active service through the full length of his employment.

Drug abuse is hard enough to detect, discourage and control; but alcohol is even worse. The image of the hard-drinking, hard-fighting man is so deeply ingrained into the military history and psyche that it is difficult to imagine the two in isolation from each other. An officers' mess would be unthinkable without a well-provisioned bar. It had been like that even in Pakistan before the 1965 war but messes gradually started going dry thereafter at the users' own initiative and desire long before prohibition was officially enforced. The '65 war, regardless of its questionable strategic conduct at the highest level of command, did prove to be a great moral catalyst—a sort of a watershed—for the officer class until then much the same in living styles, etiquette and mannerism as under the British.

The Indian armed forces, however, continue to cling to the British pattern and their officers' messes are as 'wet' as ever and the officers' living styles as close to the traditional Blimps and 'Koihais' (officers shouting for mess servants) as possible. It is quite a bit astonishing how the Pakistani officer class, far more anglicized and elitist to begin with, has reverted to its traditional code sooner than their Indian counterpart reputed to have been more native and vernacular in taste and outlook. At least insofar as the complete ban on the alcohol is concerned, the Pakistani officer class is far, far ahead of India's.

In the US and European military establishments, the problem of alcohol consumption becomes even more intractable for want of any social stigma attaching to it. Not surprisingly then, the findings on heavy alcohol consumption and "alcohol-related

problems among US personnel are less favourable". Higher percentages of drinking service personnel in 1982 reported that alcohol and adversely affected their work performance than was the case in 1980. Forty per cent of the junior enlisted and 19 per cent of the senior officers now report that alcohol had impaired their performance in the preceding twelve months (1982 survey). The 1980 figures were 31 per cent and 12 per cent for the junior enlisteds and officers respectively.

According to John H. Johns, alcohol abuse remains the 'most serious' drug problem and will probably be the 'most resistant' to our efforts. "Since it is a legal drug when used in many circumstances, the department is limited to punitive action only when its use is in violation of law or regulations". Perhaps the gravest challenge that excessive use of alcohol poses is 'drunk' and 'intoxicated' driving. This a serious hazard to the safety of the entire community. The DoD therefore has concluded an interagency agreement with Department of Transportation, National Highway Traffic Safety Administration (NHTSA) to initiate various measures to control the menace together with base commanders, military police, club managers and legal safety personnel.

The US defence department's campaign against drug and alcohol abuse is most commendable and others could and should benefit from its experience. Quite mercifully though, most of the problems being faced by the US and its European counterparts, are not ours yet, whether in extent or intensity. Nevertheless, it should not mislead us into believing that the problem does not exist at all or may not arise in the future. Till the early 70's it would have been a joke indeed to talk of drug addiction in Pakistan, now we have known cases of drug addiction in hundreds of thousands. How many more there are actually may never be known for fear of the social stigma that attaches to such a disclosure and the deep uncertainty about any timely help ever coming through even if a case is duly reported to the appropriate authority.

What is to be guarded against is the grim prospect of drug abuse in the armed forces rising in proportion to growing stresses of modern living in general and increasingly heavy demands that mechanization continues to make on the servicemen's mental resources. Islamic societies (and their armies) subject to strict religious injunctions in respect of the use of alcohol, may even have to face a greater threat from drug abuse since the injunctions in this respect are not so specific, and despite a general embargo against all intoxicants, could be variously interpreted.

It would perhaps be in the fitness of things therefore to examine the problem in depth now. In the general environment of change and destabilization, traditional mores, even if they be as deeply entrenched and dearly cherished as in our faith-oriented societies, do face the challenge of sudden eclipse. Perhaps, the climate most conducive to a rise in drug abuse is one when a society has too much to know what to do with its muchness, as in the US and Europe, or too little to lose much as is the case with most of the developing societies. What compounds the threat for developing societies could be dramatic changes in moral outlook inherent in rapid process of change. A sudden break with the past breeds discontinuity and alienation—the two main causative factors behind drug-taking. This is to be ensured that in the moral chaos and vacuum that often occurs between passing-away of one period and the birth of another the devil of drug abuse do not take the hindmost!

While writing these lines I lighted upon a study by the Indian Council of Medical Research on drug abuse on campuses. According to this study, the addiction related mostly to tobacco and alcohol, although in respect of drugs, cannabis was popular among men and analgesics among women. Many reasons are given as to why youth go for the drugs, the chief of them being frustration at home, school or college or "mere misplaced curiosity". This is often enough followed by "experimental ingestion" which after a stage "enlarges itself into a habit". The ministry of social welfare in India is launching a comprehensive media programme based largely on thematic plays and debates to highlight the ravages of drug addiction to the human mind and body.

It is most gratifying to note that the Pakistan Narcotics Control Board, has been fully seized of the present dimension of the problem and its destructive potential for the future. The PNCB is trying hard not only to evaluate and foresee the problem in collaboration with various international agencies but also forestall it in keeping with the famous Arabic proverb : قبل الموزی تبل الایذا (kill the monster before it hurts!)

The Board has in this connection launched a vigorous media programme comprising publications, workshops, conferences and judicious use of the media to expose and analyse the problem. Situated as Pakistan is on the main drug highway between Afghanistan and Iran, it cannot be too vigilant and active in attacking the problem at its tap-root in the tribal poppy fields and the conduits through treacherous mountain passes.

Brig. Abdul Rahman Siddiqi (Retd.)

Drug Abuse and Prevention in US Armed Forces

John H. Johns

In its continuing efforts to monitor alcohol and drug abuse trends in the DoD, a second biennial survey on non-medical drug and alcohol use among military personnel was conducted in 1982.

As in the previous surveys, the objectives were to assess the prevalence and consequences of alcoho. and drug abuse as we l as determine trends that may have occurred since earlier surveys. Over 20.000 servicemembers from the four Services, including both enlisted and officer ranks, participated in the survey. These individuals were randomly selected by name to provide a representative sample. Resu'ts of the survey demonstrate a dramatic decrease (34%) between 1980 and 1982 in the number of junior enlisted personnel (E1-E5) reporting current use of illicit drugs. In the 1982 survey, 25% of servicemembers E1 to E5 reported having used drugs at least once in the past thirty days versus 38% in 1980. Rates in abuse of individual drug classes, including marijuana, reveal similar declines.

The findings on heavy alcohol consumption and alcohol-related problems among US Military personnel are less favourable.

Below is reproduced the statement made by the author before the Senate Committee on Armed Forces in October, 1983.

The Department of Defence (DoD) began its extensive drug and alcohol abuse programme in the early 1970's and has made significant progress in certain areas in spite of handicaps such as legal restraints and the lack of technology for testing for cannabis. A renewed effort to control alcohol and drug abuse began in 1978.

The 1980 worldwide survey of alcohol and drug abuse in the Armed Forces confirmed that alcohol and marijuana remained the most prevalent drugs of abuse in the military, particularly among young enlisted personnel. Working in close cooperation with other Federal agencies, the Department launched a major offensive to further reduce drug abuse and produced a new media campaign for troops overseas that emphasizes healthy lifestyles and has worked closely with the Department of Transportation to conduct a series of work-

shops to reduce the incidence of drunk driving. These are just a few examples of recent programme improvements and interagency cooperation.

Major Initiative. The first major initiative to improve the DoD programme was the development of the capability to detect marijuana by urinalysis. In the Spring of 1981, chemists at the Armed Forces Institute of Pathology (AFIP) developed a process by which urine samples screened positive for cannabinoid metabolities (by-products of marijuana) could be confirmed using gas liquid chromatography (GLC). This was a major development because it provided field commanders with a biochemical means to detect marijuana use, and it incorporated the process into our laboratory system, which has been analyzing urine specimens for over a decade. The Department now has the capability to detect seven drugs through urinalysis.

The new urinalysis technique was greatly enhanced by favourable court rulings clarifying the evidentiary use of urinalysis results. In 1980, the Court of Military Appeals clarified the law concerning evidentiary use of body fluids by ruling that under specific circumstances results of such tests could support disciplinary action. A more recent decision by the Court of Military Appeals held that urinalysis testing fell within the legal context of both reasonable searches and inspections and did not violate the Fourth Amendment.

Based on the aforementioned developments, in December 1981 the Deputy Secretary of Defence issued a policy memorandum outlining the conditions under which disciplinary actions could be taken on the basis of a positive urinalysis.

The DoD policy states that military members may be ordered to provide urine samples for drug urinalysis as part of a military inspection, as the result of a search or seizure action when there exists a probable cause that evidence of drug abuse will be found, and in conjunction with certain medical treatment. In these cases, positive findings of drug abuse may be used to take disciplinary action and to establish the basis for an administrative discharge. The results of such mandatory testing may also be used to refer a Servicemember for treatment and rehabilitation.

Mandatory urinalysis may also be ordered to determine a member's competency for duty, to determine whether a member requires counseling or treatment for drug abuse, in conjunction with a rehabilitation programme, as part of a mishap or safety investigation, or any other time when a commander wishes to determine whether drug abuse is a factor in an individual Servicemember's behavior. Under these circumstances, the results of urinalysis may be used to refer the member to a DoD drug abuse treatment and rehabilitation programme, but may not be used as evidence against the member in disciplinary action under the Uniform Code of Military Justice (UCMJ) or to support characterization of service in a discharge proceeding. Administrative actions such as removal of a security clearance, however, may be taken.

Benefit of Doubt. While the detection and deterrence of illicit drug abuse is of major importance to the Department of Defence, it is of equal importance that non-users not be misidentified as users. To this end the drug testing system has been designed to ensure that any errors that occur are in favor of the individual being tested. Administrative safeguards as well as redundant laboratory procedures have been designed to ensure the integrity of laboratory findings. All samples are handled under

strict chain of custody procedures. In addition, each urine specimen submitted for drug urinalysis is subjected to two independent chemical methodologies prior to being reported as positive for the presence of a drug. Urine specimens are screened by either a radioimmunoassay process or an enzyme immunoassay procedure. Those found positive by either of these relatively inexpensive and automated chemical tests are then tested by gas liquid chromatography (GLC). Positive samples are then frozen and retained in the event that a retest is requested.

Another major development in drug urinalysis has been Service evaluation of portable urinalysis equipment for on-site testing capability. A one-year field evaluation of this equipment was conducted in 1981-82. The main criterion for the evaluations was the requirement that all positive findings by portable equipment were to be confirmed by GLC in a DoD laboratory. An important factor in the ability of an on-site device to deter drug use is the credibility with which results are perceived to be accurate. There must, therefore, be a high degree of confirmation of field positives by the laboratory. Preliminary results indicated that only about one-half of the portable positives could be subsequently confirmed. Initial suspicions that the portable equipment was inaccurate have proven unfounded. Rather, the device, which uses an enzyme immunoassay process and reacts to the presence of a number of cannabinoid metabolites, is more sensitive than the confirmation procedure. Thus, individuals who have low quantities of cannabis by-products in their urine may indicate positive on the portable device, but negative by laboratory confirmation. Under current DoD policy, such samples must be considered negative. We have been able to improve the confirmation rate of field positives and will continue to work for further improvements.

High Level Conferences. Two conferences, sponsored jointly by the Department of Defence, the White House Drug Abuse Policy Office, and the National Institute on Drug Abuse, were held in 1982 to discuss the technical aspects of the DoD drug urinalysis programme. Conference participants included recognized national authorities in the field of forensic toxicology. The primary purpose of the conferences was to have the DoD drug abuse testing procedures examined by the scientific community and to seek refinements to the state-of-the-art methodology in use in the military laboratories. Both conferences concluded that our programme was sound and conferees have continued working with the AFIP and military laboratory officials to improve our ability to confirm the positive results of portable equipment. A third conference was held in mid October 28, '82 to examine refinements in our standardized testing procedure and to review the data on GLC confirmation.

The Department has continued its emphasis on alcohol and drug abuse education as an integral part of its prevention programme. Sequential education is required for all military personnel at key points during career progression. Alcohol and drug abuse education is also required for DoD civilian employees and military dependents. DoD continues to offer treatment and rehabilitation to alcohol and drug abusers who truly want and need assistance. The Military Services offer both residential and non-residential care; DoD civilian employees have access to employee assistance type programmes and are ordinarily referred to local civilian facilities for care. In August 1981, Department of Defence published an instruction on rehabilitation and referral programmes that addresses staff, programme and quality assurance for residential, non-residential and referral services and is based on stand-

ards developed by the Joint Commission on the Accreditation of Hospitals.

Tri-Service Treatment. DoD has also taken a more active role in encouraging the development and uniform functioning of Tri-Service treatment facilities for alcohol abuse and alcoholism. The combined resources of the three Armed Services bring an additional dimension of facilitation for both treatment and staff knowledge.

During the latter part of 1982, DoD initiated an arrangement to assess the effectiveness of treatment for alcohol abuse and alcoholism in the military. To date there is insufficient knowledge to determine the most effective treatment for the diverse military as well as civilian populations who misuse alcohol.... In its continuing efforts to monitor alcohol and drug abuse trends in the DoD, a second biennial survey on non-medical drug and alcohol use among military personnel was conducted in 1982. As in the previous surveys, the objectives were to assess the prevalence and consequences of alcohol and drug abuse as well as determine trends that may have occurred since earlier surveys. Over 20,000 servicemembers from the four Services, including both enlisted and officer ranks, participated in the survey. These individuals were randomly selected by name to provide a representative sample. Results of the survey demonstrate a dramatic decrease (34%) between 1980 and 1982 in the number of junior enlisted personnel (E1-E5) reporting current use of illicit drugs. In the 1982 survey, 25% of servicemembers E1 to E5 report having used drugs at least once in the past thirty days versus 38% in 1980. Rates in abuse of individual drug classes, including marijuana, reveal similar declines.

The findings on heavy alcohol consumption and alcohol-related problems among US military personnel are less favourable. Thirty-eight per cent of the 1982 sample reports having become drunk without planning to at least once in the preceding twelve months versus 20% in 1982. More personnel in 1982 (15%) also report being inebriated for more than one day at a time in the preceding twelve months than was the case in 1980 (11%). Finally, higher percentages of personnel in 1982 reported that alcohol had adversely affected their work performance than was the case in 1980. Forty per cent of the junior enlisted and nineteen per cent of the senior officers (04-06) now report that alcohol had impaired their performance in the preceding twelve months. The 1980 figures were 31% and 12% for the junior enlisted and senior officers respectively.

Civilian Addicts. The Department also conducted a survey to assess the prevalence and work consequences of drug and alcohol abuse among DoD civilian employees. This survey, which was conducted by mail, involved a worldwide sample of 7,000 randomly selected employees from the Services and Defense Agencies. Another major objective was to determine the feasibility and value of using a survey which was administered by mail. The survey was initiated in the Fall of 1982 and the final report was published in April 1983. The survey found that alcohol and marijuana were the most prevalent drugs used by DoD civilian employees. Six per cent report marijuana use in the past year, three per cent in the past month. Only one per cent were classified as alcohol dependent, although 14 per cent reported having 4 or more drinks on an average drinking day. While the response rate approached 85%, sensitive items such as number of drinks per day were often skipped by respondents, thus making the value of this survey somewhat limited in value.

In 1982, as part of an interagency agree-

ment with the National Institute on Drug Abuse, DoD conducted a survey of high school seniors in DoD schools overseas. Survey results indicate that the prevalence of illicit drug use among DoDDS high school seniors is lower than that of their stateside counterparts but that the prevalence of alcohol and cigarette use is somewhat higher among DoDDS seniors.

Two related efforts are underway to improve management of DoD substance abuse programmes. The first of these is directed toward standardizing seven quarterly reports of activities in prevention and rehabilitation. The second effort involves computerizing this data in a relational management information system. Such automation of this data base will permit easy access of relevant indicators to programme managers and will permit more efficient production of summary reports. The revised DoD Instruction on reports was signed in August 1983 with the first automated reports expected in early CY84.

Alcohol abuse remains the most serious drug problem and will probably be the most resistant to our efforts. Since it is a legal drug when used in many circumstances, the Department is limited to punitive action only when its use is in violation of law or regulations. The Secretary of Defense began a drive against drunk driving in December 1982, as part of the National Drunk and Drugged Driving Week. A detailed, tough regulation on drunk driving was issued this past August. The directive requires alcohol and drug abuse awareness education that focuses on intoxicated driving for law enforcement and safety personnel, club managers, bartenders and waitresses. Individuals charged with intoxicated driving must be screened for chemical dependency within seven working days. Persons guilty of intoxicated driving will lose their base driving privileges for one year for the first offense and for two years for the second offense within a five-year period. The directive also calls for DoD components to establish procedures for notifying the State driver's licensing agency following an intoxicated driving offense and requires an annual report to the Secretary of Defense on the impact of intoxicated driving on the Department.

More Steps Against Alcoholism. Three additional measures to reduce alcohol abuse are in the coordination process. These involve establishing a .05 BAC while on duty as being impaired for duty, the aggressive use of breathalyzers and the alignment of the legal minimum drinking age on a military installation with that of the state in which the installation is located.

The DoD has also signed an interagency agreement with Department of Transportation, National Highway Traffic Safety Administration (NHTSA) to conduct 12 three-day workshops for base commanders, military police, club managers, and legal and safety personnel. The sessions deal with establishing drunking driver control system and programmes stressing motorcycle safety and vehicle occupant restrant. These workshops are conducted by two instructors from NHTSA and one each from each Service and OSD. This agreement will involve $75,000—$35,000 from NHTSA and $40,000 from DoD. Beyond this NHTSA is committed to provide funds for consultants, travel, and printing. The agreement was signed in mid-December 1982 during the National Drunk and Drugged Driving Awareness Week. Workshops have now been conducted at Ft. Belvoir, Norton Air Force Base, the Navy Submarine Base in Bangor, Maine and Ft. Rucker. Responses from participants have been positive and the format of the programme is being expanded from three and a half to four days.

Long Term Solution. We believe the long-term solution to drug and alcohol abuse will require a fundamental change in the values and norms which govern lifestyles in our society. The bulk of drug abuse in the military can be attributed to lifestyles associated with the youth culture of the nation. Alcohol abuse, especially drunk driving, exists to a great extent because society tolerates it; indeed, the use of alcohol by teenagers is glamourized. The Department has undertaken a long-term project to change the values, norms, and attitudes of the military community so that the culture will promote mental and physical well-being, conditions antithetical to drug and alcohol abuse. While this will be a difficult task, it is essential for the long-term solution to the drug and alcohol abuse problem.

Promoting healthy lifestyles to discourage drug and alcohol abuse is one aspect of a comprehensive approach to health promotion designed for DoD-wide implementation in 1984. The objective is to establish an integrated, chain-of-command emphasis on the interactive effects of lifestyles, work settings and environment on health, well-being and productivity within the DoD community. Populations which will be progressively served through this expanded preventive health concept are active duty servicemembers, civilian employees, reservists, retirees and their families.

This broad health promotion initiative capitalizes on medical research demonstrating that the majority of debilitating and life-threatening diseases can be prevented by improvements in individual lifestyle and environment. As reported by the Centre for Disease Control in 1978, 50% of the 10 leading causes of death can be attributed to lifestyle. Research further indicates that changes must be simultaneously initiated at several levels to be successful—individual, family, work-group, organization, and community.

Current Health Measures. Currently the Services pursue some components of health promotion in varying degrees, such as physical fitness and weight control. Often projects are implemented in a piecemeal, ad hoc manner without an opportunity to flourish and be sustained over the long term in a supportive institutional climate. Usually health promotion remains the domain of a few health professionals and community volunteers without adequate supporting links to the chain-of-command. By increasing awareness of the elements which constitute successful health promotion and focusing its direction, support and encouragement through the chain-of-command, DoD expects to achieve increased readiness, productivity and lower medical costs.

Evidence shows that availability of material resources, networks of social support, reasonable level of ability to cope with ordinary challenges, personal sense of commitment to an ideology or social group, and reasonably stable living conditions are critical. Our goal must be an integrated community that provides a sense of belonging and support.

In the final analysis, drug and alcohol abuse is a reflection of the values and lifestyles of our society. As long as these behaviours are embedded in routine habits and social patterns, isolated efforts to change individual behaviour will be difficult. Unless desired behaviours are integrated into the culture of the community, the Department, and the nation, will have limited success. We believe that our systematic, long-term effort to promote healthy lifestyles and to strengthen our military community as one with values and norms which support such lifestyles offers the best hope for the elimination of alcohol and drug abuse as a major health problem in the Armed Forces.

National Security & Drug Abuse in Pakistan

A JOINT STUDY

By

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The Government of Pakistan is fully conscious of the magnitude of the prob'em and its impact on our nation and the international community. The commitment to the elimination of production, processing, trafficking and consumption of narcotics is total and unqualified. The strategy designed for the purpose consists of a four dimensional thrust. These are (a) meaningful replacement of poppy cultivation (b) effective law enforcement (c) reduction in demand for narcotic drugs through treatment and rehabilitation of addicts and (d) prevention of use by education and motivation.

On February 10, 1979, the Prohibition (Enforcement of Hadd) Order was promulgated by the Government of Pakistan which brings the drug laws of the country in conformity with the injunctions of Islam. As a result, a ban has been imposed on opium cultivation throughout the country and is being strictly enforced in the opium producing areas of the North West Frontier Province. The ban has already produced spectacular results. The area under cultivation has gone down from about 81,000 acres in 1978-79 to 6,300 in 1982-83. In 1979, Pakistan produced illicit opium yielding a harvest of about 800 metric tonnes. In 1984 it has produced only 45 metric tonnes.

A complete ban has also been imposed on the production, possession, processing, manufacture, sale and use of all intoxicant drugs. The new legislation has both religious sanction and wide popular support.

National security and welfare are positively correlated to the abuse of drugs. The colossal health hazards that result with the abuse of narcotic drugs, negative impact on the economic productivity of human capital, adverse affects on national savings due to unproductive spending ultimately culminating into retarded economic development, the relationship between drug abuse and crimes, shattering of the social fabric, weakening of human bonds and cohesive forces among primary and secondary groups within the community are the facts that have a cumulative effect on the

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security and economic prosperity of a nation. Pakistan being a young nation striving to achieve a prominent place in the galaxy of nations can hardly afford the perpetuation of a phenomenon that threatens its egalitarian ideals of an Islamic State, social justice and economic prosperity.

Drug abuse erodes courage, corrodes human strength, damages physique, diminishes working capability and decreases interest in life and ultimately carries socio-economic adversity to generations. The environmental effects and consequences of increasing incidence of drug abuse prevent the promotion and maintenance of stable relationship among family, community, society and people. The social delinquency resulting from drug abuse produces dysfunctional parents, disintegration of moral values, vulnerability to social crisis and a religious decay. The nation ultimately loses capability to defend itself against the enemy, not only foreign aggressors but illiteracy, poverty, disease and hunger.

The main thrust of Pakistan Narcotics Control Board currently and during the recent past has been not only to eliminate the production of narcotics, suppression of drug trafficking, treatment of addicts and their socio-economic rehabilitation but to identify, acknowledge and plan for the control of narcotics abuse within the country. The efforts have succeeded in creating an awareness among the national policy makers for appropriate corrective measures so that the nation may not be caught unaware in the spectre of drug abuse. The programmes of awareness and preventive education have also been initiated through the use of both print and broadcast media highlighting the adverse effects of drug abuse on human health, social fabric, moral values, economic productivity, and national security.

In general, the proportion of abuse of modern drugs is on a steady increase (originating from urban centres). With the advent of heroin this previously gradual acceptance of modern drugs has accelerated with geometrical proportions for newcomers. Nevertheless, the acceptance of a modern drug does not per se imply that a previously abused traditional drug is now discarded; concurrent consumption of both the drugs is observed. In other words, with the advent of modern drugs, the tendency to poly-drug abuse has increased sharply.

The spectre of drug abuse today continues to plague the world in a big way. It is a self imposed but infectious disease which afflicts its victims with negative effect on motivation, achievements and verticle mobility in society. The causes of drug abuse are as complex as the mosaic of environmental, emotional and individual factors that form a personality. Drugs in themselves are not the main problem. Indeed drug abuse is symptomatic of profound problems which are particularly acute for those who are trying to cope with socio-economic stresses, positive family relations, acceptance in society as well as emotional and social support. When such supports are not available or extended, drugs may become supporting instruments but most unfortunately this support cripples one's ability to develop into a responsible, respectable and productive member of society.

Drugs of Abuse. *Opium*—The poppy Papaver Somniferum is the main source of the nonsynthetic opiates which include opium gum, morphine, heroin (diacetyle morphine and mono-acetyle morphine) and codeine. The milky fluid that oozes out from incisions in the unripe seed pod and air dried produces opium gum. A more modern method of harvesting is by the industrial

poppy straw process of extracting alkaloids from the nature dried plant. The extract may be either in liquid, solid, or powder form. Most poppy straw concentrate made available commercially is a fine brownish powder with a distinct odour. At least 25 alkaloids can be extracted from opium. These fall into two general categories each producing markedly different effects. The first known as the phenanthrene alkaloids represented by morphine and codeine and are commonly used as analgesics. The second alkaloid group is isoquinoline represented by papaverine and noscapine which have significant and influence on the control of nervous system. The principal constituent of opium, ranging in concentration from 4—20 percent, morphine is one of the most effective drugs known for the relief of pain. It is marketed in the form of white or brown crystals hypodermic tablets and injectable preparations. Its legal use is restricted primarily to hospitals. Morphine is odourless, tastes bitter and darkens with age.

Heroin—First synthesized from morphine in 1874, heroin was not extensively used in medicine until the beginning of this century. The Bayer Company in Germany first started commercial production of the new pain remedy in 1898. Pure heroin is a white powder with a bitter taste. It may vary in colour from white to dark brown because of impurities left from manufacturing process or adulteration with food colouring and brown sugar.

Cannabis—Cannabis Sativa L, the hemp plant grows wild throughout most of the tropic and temperate regions of the world. This plant has long been cultivated for the fibre and biologically active substances most highly concentrated in the leaves and resinous flowering tops. The plant material has been used as a drug for centuries. In 1839 it entered into the annals of western medicine. Among many cannabinoids synthesized by the plant are cannabinol and several isomers of tetra-hydro-cannabinol. The one which is responsible for most of characteristics psychoactive effects in cannabis plant is delta-9-tetra-hydro-cannabinol (THC) one of 61 cannabinoids which are unique chemicals found only in cannabis. Leaves and flower tops of cannabis ground with fruit nuts, sugar and water are used in liquid form (*Bhang*). The resinous material of the flowering tops is ground into fine powder and converted into thick paste is used by smoking in cigarettes (*Charas*) mostly alone and often mixed with other drugs. The low dozes of cannabis tend to induce restllessness and an increasing sense of wellbeing, dreamy state of relexation, hunger and craving for sweets. Stronger dozes of cannabis change sensory perceptives—sight, smell, touch, taste and hearing, accompanied by subtle alterations in thought formulation and expression. The abuser of *charas* (cannabis) experiences rapidly fluctuating emotions, a flight of fragmentary thoughts with disturbed associations, an altered sense of self-identity, impaired memory and dulling of attention.

Hashish is another product of cannabis. It consists of THC rich resinous secretions of cannabis plant which are collected, dried and compressed into balls and cakes. The average THC contents in *hashish* and *charas* vary from 2—10 per cent.

Cocaine—The most potent stimulant of natural origin, cocaine is extracted from the leaves of the coca plant (Erythroxylon coca) which has been cultivated in South America. Pure cocaine, the principal psychoactive ingredient was first isolated in 1880. Although many of its therapeutic applications are now obsolete, its use as a narcotic drug has immensely increased world wide. Because of the in ensity of its pleasurable effects, cocaine has the potential for extraordinary psychological dependency.

Methaqualone (*Mandrax*) —It is a synthetic sedative commonly known as mandrax. It is widely abused because it was once mistakenly thought to be non-addictive and effective as aphrodisiac. Large doses cause coma which may be accompanied by thrashing movements or convulsions. Methaqualone is marketed under various brand names such as Quaalude, Mandrax, Parest and Dptimil.

Drug Abuse in Pakistan. Pakistan is facing a serious and complex situation in narcotics production, processing, trafficking and abuse. Two narcotics plants (i) opium poppy and (ii) cannabis have been historically and traditionally grown in Pakistan. Cannabis grows wild in the northern areas of the country. One can therefore understand the irresistible temptation to collect it and convert it into cannabis resin (*charas* and *hashish*) for sale and easy profit. In recent times, poppy cultivation was restricted to three types of administratively diverse areas in the North West Frontier Province, strategically very important and politically very sensitive because of their close proximity to the Afghan and Russian border. These are (a) Settled Districts (b) Merged Areas or Provincially Administered Tribal Areas (PATA) and (c) Federally Administered Tribal Areas (FATA).

In the settled districts which at one time produced 35% of the total opium production and where normal laws apply, poppy was being cultivated with the blessings of the Government, under licence since before Independence which provided sizeable revenue to the Government. After collection, the licenced production was processed and issued by the Government Opium Factory at Lahore for scientific, medical and quasi-medical uses. The cultivation of poppy in the merged or PATA areas which at one time accounted for about 60% of opium production in Pakistan was not governed by a licensing system or any law. The normal laws of the country are now being gradually extended to them in a phased manner. The Federally Administered Tribal Areas which contributed about 15% of poppy cultivation enjoy a special status as they continue to be largely administered by tribal customs, and usages.

The problem is not therefore of recent origin but in the past it was manageable. The situation changed dramatically in the seventies when a qualitative and quantitative change in the nature of the problem, its size and magnitude took place. There was a quantum jump in the area under poppy cultivation in 1978-79. Opium production went upto 800 metric tons. This was a direct result of escalation in the demand of opium and heroin in the West.

The situation took yet another serious turn when vested interests brought in the technique for the conversion of opium into morphine and heroin on the scene. With this new development and involvement of big financiers, members of international criminal gangs, the situation assumed serious proportions. Fillip to this activity was provided by the disturbed political situation in the region. Inevitably and predictably illicit laboratories started springing up in the heart of the tribal areas, taking advantage of its special status, its relative inaccessibility, its exemption from normal laws, the backwardness of the people, their total dependence on poppy cultivation and their extreme vulnerability to temptation.

The situation was aggravated by the inflow of Afghan opium into the tribal areas from across the border and the presence of about 3 million Afghan refugees in the area has further complicated the situation. Afghanistan which was the main trafficking route of narcotics is now mostly closed due to the presence of Russian troops. The

bulk of the drug trafficking is therefore diverted to the main land of Pakistan en route to the Western countries. The disturbed conditions in Afghanistan and Iran have also compelled the traffickers to divert the supplies through the main land of Pakistan. This, in brief, is the problem of narcotics production that Pakistan is faced with today.

There are 1,300,000 regular drug abusers estimated to be living in Pakistan. According to the National Survey on Drug Abuse (NSDA) the majority i.e. 820,000 (63%) are residing in rural areas and the remaining 480,000 (37%) in urban communities. Thus, it might be concluded that at least 1.55% of the total population of Pakistan tends to abuse drugs, 2.03% of the urban population and 1.36% of the rural population.

As drug abuse in Pakistan is almost exclusively a male activity, these figures gain the proper dimensions only when projected for the target group: males of 15 years and above. Then, the proportion of those afflicted goes up to 5.3% of the adult males, 6.7% in the urban setting. This implies that every 19th male adult (every 15th in urban and every 22nd in rural communities is having a brush with drugs. In other words, every 11th household (every 8th urban and every 13th rural household) has to cope with a drug abusing member. It would thus not be inappropriate to assure that Pakistan's drug abuse problem is more serious than generally thought.

The average age of drug abusers is 35 years. The first drug contact was made at the age of 22; average period of contact with drugs comes to 13 years. At present, 48% of the abusers are below 30 years old. The age bracket of 20 to 30 years contains some 80% of abusers, though only 20.9% of the total population. Of all newcomers to drugs, 87% join the ranks before they reach the age of 30 years. The correlation of these two facts clearly signifies that there is a sharply upward trend in prevalence of drug abuse and that the drug scene is changing fast. The high risk age group for becoming a drug abuser is clearly between 15 and 30 years.

Not Just a Class Problem. No conspicuous trait and no obvious deviation are observed as to such aspects as presence of parents in childhood, mobility, and residence patterns. As far as this last aspect is concerned, drug abusers in fact somewhat are better off than non-abusers, as 83% reside in homes owned by their family. Definitely drug abusers in general do not represent or comprise the under privileged, downtrodden members of society whose childhood was abnormally severe.

Almost 48% of the total number of abusers are literate (even a remarkably high 41% of the rural abusers). This shows that abusers generally enjoy considerably higher level of literacy (and also of educational standard, for that matter with 21.4% having attended school for 10 years or more *vs* 14.6% in the general population) than is observed for the country's male adults (34%). This fact cannot merely be explained by their comparatively younger age. Drug abuse in Pakistan is correlated neither with illiteracy nor with low income, as the abusers earn Rs. 1,523 per month and their family budgets are Rs. 2,250. At an average family size of six, this comes annually to Rs. 4,030 per capita. As to occupational categories, drug abusers are significantly over-represented among administrative, clerical, professional, skilled and sales workers. These are thus the high risk occupations. In the rural setting, agriculturalists are far less afflicted by drug abuse than are the non-agriculturalists. The most coveted occupational categories in the society (professionals, administrative and clerical workers) account for merely 7% of the labour force but for

27% of the abusers. Hence, it transpires that contrary to popular notions drug abuse in Pakistan is not confined to those of lower status and achievement.

Drug abuse in Pakistan as revealed through this NSDA is 90% 'heavy' abuse (for the purpose of present analysis heavy abuse is defined as drug abuse on 1.2 to 3 days out of every 3 consecutive days). oscillating between 54% for alcohol and 97% for *charas*. Merely 6% are 'moderate' and 4% 'light' consumers. 80% take the drug daily, ranging from 34% for alcohol to 93% for *charas*. On average the abusers take their respective drug(s) on 26 days in a month with a range from 15 days for alcohol to 29 for *charas*.

Drug expenditure are a burden on the abuser and his family. Rs. 300 are spent on drugs in each month or the very high amount of Rs. 3,600 annually (equal to Pakistan's per capita income in 1981/82) per abuser*. This sum represents as much as 20% of the income of the abusers' entire family. Drug abuse has an even more negative repercussion on the finances of the afflicted families, as the abusers claim that their families rely upon them for 68% of the total family budget.

Traditional drug use and unemployment by no means are positively correlated. This rather comforting feature is, however, on the decline with the passage of time. Abusers of modern drugs tend to conspicuously higher degree to be unemployed or partially employed.

For the *heroin* and *mandrax* abusers unemployment poses a particularly grave problem: 32% and 29%, respectively, of the users of the two drugs are unemployed as compared to the overall average of 14% for the general abusers, and 10% and 22% respectively are only partially employed. These high rates for heroin are the more perturbing because heroin abuse is of short duration and abusers are young (95% below 30 years) and thus income generation and family stability are adversely affected. Instead of supporting their dependents they become a burden upon the family.

The majority (82%) claim to finance their craze primarily by their own means. 10% depend on spouse and family, 3% on charity and 2% on friends. With heroin a conspicuously high proportion (41%) has to rely on others to get their drug. On the other hand, the abusers of alcohol enjoy relative financial autonomy as compared to other drugs. 86% finance this drug by their own means. The unemployed abusers report that they are supported by the family (77%), through charity (15%) and by friends (3%).

The total amount spent on drug abuse in Pakistan is Rs. 4,000 million per annum. (Another Rs. 2,400 million is spent on smoking cigarettes). The sum for drug abuse alone represents as much as 1.5% of the GNP (gross national product), spent by just 1.5% of the population exclusively on their drug habits. Seen from a different angle, every Pakistani spends Rs. 50 per annum on drugs. This sum exceeds federal revenue expenditures for both the health and education sectors multiplied by a factor of 4 and is at par with such highly publicized sectors as overseas remittances of Rs. 3,700 million in 1982/83.

The notion has to be discarded that drug abuse is a pocket-money affair. Rather, the losses to individuals, families and ultimately to the society are colossal and out of proportion for a country striving to im-

* Expenses on cigarettes do not enter into these calculations.

prove the living conditions of its large population.

Socio-Economic Profile. The socio-economic profile of drug abusers has also changed. The image of the traditional abuser was that of a comparatively confined (mono-drug) abuser, of older age, virtually unbettered, somewhat rural, of low income and lower status group. In fact, this type marks only one extreme pole of the present-day abuser. At the other end of the range of profiles is the diametric "opposite" of the 'traditional' drug consumer: the young, highly educated (poly-drug) abuser with quite an affluent family background in a respectable profession earning good personal income and with high status. In between, drug abuse in Pakistan is the affair of unconspicuous citizens not far from the average.

Heroin and other modern drugs such as methaqualone (*mandrax*) have opened up new social classes for hard drug abuse, so that the alleged uniformity among drug users is no longer the rule. As the choice of drugs available has become broader, the abusers themselves have become multi-faceted and do not display much cohesion as a population group. There emerge, however, distinctive profiles of typical abusers of specific drugs. At present there is a drug available to suit virtually every type of potential consumer.

Traditionally, drugs abused in Pakistan were *charas*, *bhang*, opium and alcohol. Gradually 'modern' drugs were incorporated into the drug consuming habits: e.g., morphine, codeine, tranquillizers, mandrax (methaqualone), and rockets. The advent of heroin has added a dimension hitherto unexperienced. The drug abuse situation, which was rather stable, has since then changed dramatically. Heroin, an opiate, virtually unknown and unavailable three years ago, assumed seventh place in 1982 and fifth at the end of 1983. Moreover, it has penetrated throughout the country and has reached even outlying areas.

Whereas the phenomenon of traditional drug abuse in Pakistan was in a way adapted to the socio-cultural fabric and the negative effects (even of protracted use) appeared to have been manageable, the impacts of the hard drugs on the abusers are immediate and of a different dimension, e.g., impairment of working capacity and efficiency, decreased income, unemployment, adverse effects on health and familial/martial relations. All these are experienced within a short time after starting regular abuse. These drugs obviously affect the personality of the abuser adversely and soon change his way of life and prospects for the future. Drug abuse and the concomitant profound effects ultimately alter the entire course of life of the affected families. This fact has yet to be acknowledged in Pakistan: the time has gone when drug abuse was a leisure time activity without too severe repercussions. The image and impact of modern drugs are such that they attract new groups of customers, who hitherto did not indulge in drug consuming. This attraction has been the major reason for the high degree of distinction at the time the study was planned between traditional drug users of lower socio-economic status and achievement. However, there is no longer any polarization, as the gap has now been bridged by the majority of drug consumers, who are ranked or accommodated in between these polar extremes. Drug abuse has become an affair of each and every socio-economic group; it is no longer in affair of minorities outside the mainstream of society.

Geographical Spread. Baluchistan comes last in respect of drug abuse rates (1.2%) and NWFP first (1.9%). As regards poly drug abuse NWFP is last (1.05%) whereas Punjab is first (1.34%). Yet

the assessment as to which province, which region or which community is most severely affected cannot be made without referring to another factor, the differing potency of drugs. To analyze this important point, the provincial gravity of drug abuse can be compared.

Baluchistan clearly emerges with a clear lead as the most affected province as far as gravity of drug abuse is concerned. Sind is next (merely because of Karachi, non-Karachi Sind being in last position) followed by NWFP and Punjab, both at similar levels. Punjab remains comparatively orthodox in its drug taking habits, whereas urban Baluchistan seems to be out of control, the escalation witnessed in this case is tremendous. The province seems to have accelerated its speed of growth and has out-paced the other provinces easily from a supposedly similar level at take-off a few years back. If this province is to represent the future trend of Pakistan's drug problems, it is indeed a bleak prognosis.

Consumed Quantities of Drugs. In 1982 some 175 tons of opium were presumably consumed within the country. 315,000 opium abusers were taking 1.3 grams daily on 28 out of 30 days, thus consuming a total of 140 tons. There were 30,000 heroin abusers (at the beginning of the year 20,000 and at the end 50,000) consuming 0.6 grams daily on 27 out of 30 days with a purity of 60%, implying that they consumed the equivalent of 35 tons opium, these two quantities together make a total of 175 tons.

This figure may be somewhat conservative, as the self assertions of the abusers are never taken at face-value, but are in fact reduced by some 50% in accordance with previously recorded individual dosages on a daily basis and also to take into account adulteration. Even then, this amount is nearly 3 times Pakistan's drastically reduced opium production which was estimated at 45 tonnes in 1984. The volume of opium required in 1984 for domestic consumption has been risen to 240 tonnes or 5 times the production estimated at 45 tonnes in 1984. In addition to opium, some 800 tonnes of charas are also annually needed to cater the domestic demand. The volumes required, of both opium and charas exceed by far the former notions of the scale of domestic consumption. Mandrax is consumed at a rate of 75 million tablets, and 45 million tranquilliser tablets are taken without medical prescription.

The country is well seized of the problem of drug abuse. A plan is under execution which seeks to extirpate this menace. It is a time consuming exercise and needs long term planning as well as continued vigilance and control. The production of drugs is on the decline and the traffic in narcotic is under strict vigilance and larger than ever quantities are being constantly impounded.

The Government is fully aware of the magnitude, complexity and ramifications of drug abuse in Pakistan as well as repercussion of illicit export of narcotic drugs on various parts of the world. The multidimensional aspects of narcotics including production, processing, illicit trade, increased use and impact on society are objects of sharp focus of Government policy. The imposition of a complete ban on production and use of narcotics require effective implementation of these firm but hard-to-enforce decisions.

As a result of the ban on production thousands of farmers have been deprived of the only enterprise providing a high enough return. The opium traders have lost a substantial income which they earned as mark up. The farm labour in turn has been deprived of means of livelihood. Poppy, being a labour intensive crop, was a source

of employment during lancing and extraction. As a result, a life sustaining economic activity has been restricted and the growers and traders pushed into an idle wilderness, at least till such time as "alternative" is stimulated and activated to generate equal or better resource utilization for employment and income substitution.

This bleak situation clearly calls for a high priority socio-economic development programme for the poppy growing areas based on mobilisation of natural resources, productive employment of human capital, improvement of technological changes in production systems and the development of productive technology commensurate and in consonance with the ecology of poppy producing areas.

Spectacular success has been achieved by the concerted efforts of the Government of Pakistan towards the control of narcotics production. In 1978-79 the production of opium including illicit production in NWFP was about 800 metric tonnes. As a result of the ban on cultivation the total yield of opium in 1979-80 came down to 100 metric tonnes. In 1980-81 it was brought down to 85 metric tonnes and in the years 1981-82 it was further reduced to 67 metric tonnes and in the years 1982-83 the opium production stood in the neighbourhood of 63 metric tonnes. In the year 1984 Pakistan produced only 45 metric tonnes of opium.

Crop Substitution. The phenomenon of crop replacement is as old as the human civilisation itself. It is always capital and technology intensive. Effective implementation of the ban on poppy cultivation assumes and calls for capital intensive alternatives to realise the long range objectives. There is no other way to unfetter mankind from the spectre of narcotics addiction and its noxious consequences. Pakistan being a developing country, has accorded priority to drug abuse control within its own limited resources in order to fulfill its national commitments and honour international obligations.

Four projects are in hand where crop substitution is in progress. These are in Buner (Swat), Malakand Agency, Gadoon-Amazai (Swabi) and Dir. The results achieved so far show success of the projects which are ongoing and will take some time to complete.

Buner Project was the first programme in the country representing the crop substitution approach and reached its fag-end early in 1980. In order to establish it as a viable model for the replacement of opium poppy crop, every effort at international level was made to solicit finances to continue Buner Project. The strategy and modality for poppy replacement was reconsidered and was revised envisaging a "basic need" approach for an overall socio-economic development of Buner Sub-division. The project was formulated for an extended coverage in terms of area and expanded rural development requirements.

The 1981-87 Buner Project envisages rural development in the area, including factor inputs for viable farming system of cash and food crops in place of opium poppy, building of 82 kilometers of metalled roads, supply of potable water to 21 villages, provision of an irrigation network, improvement in livestock health and production, terracing and levelling of land, supply of farm credit, planting of fruit orchards and education of farmers. The extended project is provided with UNFDAC assistance to the tune of US $7.5 million and Government of Pakistan contribution to the extent of Rs. 16.0 million. The duration of the project is 6 years.

Buner Sub-division is not only a narcotics producing area but is infested with a high rate of opium and cannabis addiction. The facility for detoxification has been upgraded and rehabilitation infrastructure which was badly lacking, has not only been introduced for male dysfunctional addicts but also for females. A full fledged mechanical workshop equipped with the facility of training in tractor/farm implements repairs, carpentary, tractor driving and machine works has started functioning. This has provided skills to the people of the area for seeking gainful employment and making the former dysfunctional addicts productive and useful members of society. A Women's Industrial Home has also been established in Nawagai village primarily for addicts' families with facilities for imparting skills in tailoring, knitting and handicrafts. The centre aims at providing an avenue for economic activity to the village families and improving their standard of living. In a traditionally poverty-ridden social environment an "agent of change" has been introduced to bring about socio-economic amelioration.

A similar programme for the rural development of Malakand Agency which produced opium poppy on about 3,000 acres annually has been implemented in 1982. The project envisages building of 24 kilometer of road, electric supply, construction of foot bridges, forestation, agricultural improvement and development of livestock resources.

Essentially tribal in character and content, Gadoon-Amazai area of NWFP has been a producer of opium poppy since long. On an average the area produced about 30 metric tonnes of opium from poppy cultivated on about 3,000 acres. A programme of opium poppy replacement and to develop the area for a viable means of income generation without dependence on opium production has been initiated in 1984 with following components:

- Building of main and feeder roads.
- Supply of electricity and drinking water.
- Building of health centres and schools.
- Establishment of vocational training centres.
- Lift and flow irrigation schemes, land levelling and terracing.
- Improvement of crop production, introduction of new cash crops, fruit and vegetable farming.
- Extensive of improved technological package to farmers.

Dir district of Malakand Division is another opium poppy producing area in NWFP. In 1982-83 opium poppy was cultivated on about 3,000 acres in Dir District. In order to eliminate poppy cultivation through income substitution and rural development a programme has been initiated for a period of five years. The development programmes for Dir includes introduction of improved methods of crop production, introduction of new cash crops to replace opium poppy, building of roads, irrigation schemes, improvement in livestock production, land levelling, rural electrification and education of farmers by agricultural extension service.

Treatment and Rehabilitation. Elimination of the abuse of drugs has been the primary concern of Pakistan Narcotics Control Board. A definite level of reduction in demand for drugs (opiates, cannabis, psychotropic and psychoactive substances) is a clear indication of the programme's success. Realising the importance of detoxification programme, efforts were made to increase the number of detoxification cen-

tres and extend the facility to small towns and rural areas. Till 1980 only seven centres were operating in big cities of Pakistan. An extensive detoxification programme covering the rural areas where 73% of the population lives, has been developed. The programme, under implementation envisages the establishment of more detoxification and rehabilitation centres in rural proximaties but integrated with provincial health system. By the end of 1983, 25 first rate hospitals for the treatment of addicts with indoor facilities, and drug diagnosis laboratories have been established all over the country. Indigenous system of medicine, the *unani tibb* is also relied upon to play its role in this humanitarian task. During the span of about three years 1981 to 1983 PNCB detoxification centres throughout the country were revitalised and have detoxified and weaned away more than 22,000 addicts from drug abuse.

Detoxification in Gilgit. Gilgit Agency (Northern Areas) where addiction has been known to be rampant and production of opium exceeded all economic activities is now receiving full attention of the Pakistan Narcotics Control Board. Three detoxification centres in the Agency located at Gilgit, Chatorkhand and Immit have been established. The number detoxified so far stands at 3,000. Another centre at Hunza is planned. A rehabilitation centre at Gilgit for drug persons is also operating.

Agricultural Improvement in Gilgit. Opium poppy cultivation dominated entirely the agriculture production over marginal lands in Gilgit agency. This area once was self sufficient in cereals and pulses but with increase in poppy cultivation it became a food deficit area. Livestock population also dwindled due to shortage of fodder. With increased opium production the rate of addiction multiplied. The Prohibition (Enforcement of Hadd) Order, 1979 was extended to Northern Areas and poppy cultivation banned. The withdrawal of opium poppy from the farming pattern was achieved at an enormous cost in socio-economic terms. It was considered imperative that economic hardship to the farmers, consequent upon the total ban on poppy cultivation should be relieved through improvements in agriculture with emphasis on the development of cash crops ensuring poppy farmers quick and viable returns. Plans were expeditiously put into action and negotiations with UNDP resulted in an agricultural improvement project involving the development of bio-hydro-chemical technology. The arrangement has led to the introduction of cash crops with a package formula of farm inputs.

Agricultural Outreach for Merged Areas. As the pressure for the elimination of opium poppy gained momentum in merged areas and side by side the success story of Buner project came to be known to the farmers in Swat, Dir, Malakand and Chitral, demand for similar assistance by PNCB also gained momentum. It was not financially possible to replicate Buner capital-intensive model in each and every poppy production area. The crux of the problem is to withdraw poppy from the farming system through the introduction of a viable production technology to produce crops of higher economic return. Therefore, it was considered necessary to extend to these areas modern techniques of crop production coupled with farm inputs like seeds of high yielding varieties of new crops, fertilisers, irrigation, dairy-farming management, pesticides and improved tools and implements. In order to introduce improved agricultural practices, research and extension services of the area were required to be in the van-guard of the movement for demonstration purposes to motivate the farming community. The coverage for such a programme was designed through 'Block System' of 100 to 200 acres in Dir, Malakand and Swat districts in the initial stages.

The programme was named "Agricultural Outreach". Outreach work was initiated for the introduction of groundnut, improved production of wheat, rapeseed, potato and sunflower. The programme even after only one season, has proved to be a real success. The groundnut, a high cash yielding oil crop, has shown very encouraging results under rainfed (*Barani*) conditions. It is intended to extend the "Agricultural Outreach" to the entire merged areas of NWFP with maximum coverage of farm families and lands devoted to poppy cultivation.

Inter-Agency Cooperation. As a coordinating agency at federal level PNCB functions lay emphasis on working in close cooperation with the national and international law enforcement agencies for the control of illicit drug trafficking. Efforts were initiated in 1980 to develop close contacts and provide information with material assistance and training, for an effective interdiction of drugs by the Pakistan law enforcement agencies. The quantum of narcotic drugs seized during the years 1981—1983 are given in the following table:

The efforts to further strengthen inter-agency cooperation for interdiction of drugs are still in the process of development and high priority is assigned to inter-agency coordination in the field of drug law enforcement. A drug enforcement section in each of the provincial police department is already established and designated as Joint Narcotics Control Task Force. The Police/PNCB Excise/Customs joint efforts are producing meaningful results in the interdiction of narcotics. PNCB also coordinates the efforts of various related agencies operating in the field of narcotics interdiction. It is hoped that PNCB will be able not only to develop cooperative inter-agency project for narcotics interdiction but will also enhance the overall capability of all enforcement agencies in Pakistan.

In a short span of two years and inspite of formidable handicaps PNCB has managed to coordinate effectively with the activities of international enforcement agencies. A liaison and a working relationship has been established with DEA of USA, BKA of Federal Germany, RCMP of Canada, HMC of Britain, Australia, the Netherlands and Nordic countries for the

Total Narcotic Drugs Seized in Pakistan by Drug Law Enforcement Agencies During 1981—1983

Drugs	Quantity Seized 1981	1982	1983
Heroin ..	431.689 Kgs.	1097.010 Kgs.	3731.965 Kgs.
Opium ..	11941.304 Kgs.	8519.500 Kgs.	11119.827 Kgs.
Morphine ..	215.000 Kgs.	111 Inj.	18017 Inj.
Cannabis ..	53173.482 Kgs.	27589.054 Kgs.	37044.915 Kgs.
Mandrax ..	13948 Tab.	64725 Tab.	13029 Tab.

control of illicit drug traffic. The PNCB has also started collecting and compiling data in respect of traffickers, mode of trafficking, international contacts, destination of drugs and international drug smuggling. Not only raids are launched for seizures within the country but sister agencies are fed with information on the movement of drugs. Constant contacts are also kept with United Nations Division of Narcotic Drugs and Interpol.

Training. In order to improve the functional capability of PNCB law enforcement staff and personnel of other law enforcement organisations involved in the interdiction of narcotics, a school has been established to impart advanced training in professional aspects of narcotics law enforcement. The school has so far conducted 42 courses involving the personnel of PNCB, Pakistan Customs, Police, Excise, Frontier Constabulary and Coast Guards and graduating 1,000 participants.

Forensic Laboratory. As important aspect that had remained unattended to for long was the establishment of a well-equipped scientific laboratory for chemical analysis and testing of drugs seized by law enforcement organisations particularly for judicial proceedings. Proper chemical examination of drugs provides scientific basis for the execution of legal proceedings against traffickers, manufacturers and pushers of drugs. The PNCB forensic laboratory started functioning in 1982 in a section of the National Institute of Health at Islamabad where facilities for chemical analysis already existed. The laboratory conducts forensic testing of drugs seized during interdiction.

Revision of Laws. In the legal frame for narcotics control a very dynamic approach has been adopted by the Government. Prior to 1979, the punishments for narcotics trafficking were very light, maximum being two years. In 1979, promulgation of Prohibition (Enforcement of Hadd) Order was a milestone in the field of narcotics control in the country. Punishment was enhanced to 5 years with whipping upto 30 stripes. In 1983 as the menace of heroin trafficking increased, the punishment for trafficking more than 10 grams of heroin was raised to life imprisonment with a minimum of two years. The vital 1983 amendments in Prohibition Order of 1979 and Dangerous Drug Act 1930 are operating as deterrent in heroin trafficking.

Highlights of Drug Abuse Prevention

C. L. Martin

The United States drug abuse problem has been of national concern for several decades. It must be said, however, that both the civilian and military sectors of American society moved slowly and painfully through the intervening stages, during which a society denies that a drug abuse problem is present and growing; then recognizes that the problem is acute and becoming chronic. Utopian crisis management then takes hold in an effort to contain the problem, its impact on society and the military establishment. This eventually leads to gradual realistic action to attenuate and solve the problem.

We in the United States are deeply involved in stage four: while solving the problem is a continuing desire—actions to reduce supply and demand of illicit drugs mandates international cooperation. Countries which have a developing domestic drug problem might desire to view the American experience as early warning for their military establishments.

The drug threat, posed by worldwide production, distribution and consumption of illicit drugs impacts on our most precious natural resources —the youths of our nations. This problem is compounded by the early use of tobacco and alcohol.

The US military has a drug abuse problem, we consider it serious, just as we consider anything which impacts on our personnel and mission capability to be serious; however, we do not consider our drug abuse problem to be of epidemic proportion or uncontrollable. While we have a problem, we also have programmes designed to reduce this problem which we inherit into the armed forces from our civilian society.

As is true in the civilian population, the majority of military drug abusers are male, single and under twentyfive years of age; sixty-three per cent of the force is in this age group. Cannabis is the illicit drug most often used. Two out of three recruits have experimented with cannabis prior to joining the military. Continuing on this point, let us review the developmental stages of drug abuse in society.

The United States drug abuse problem has been of national concern for several decades. It must be said, however, that both the civilian and military sectors of American society moved slowly and pain fully through the intervening stages during which a society:

- **Denies that a drug abuse problem is present and growing.**
- **Then recognizes that the problem is acute and becoming chronic.**
- **Utopian crisis management then takes hold in an effort to contain the problem, its impact on society and the military establishment.**

This eventually leads to:

- **Gradual realistic action to attenuate and (solve) the problem.**

We in the United States are deeply involved in stage four: while solving the problem is a continuing desire—actions to reduce supply and demand of illicit drugs mandates international cooperation. *Countries which have a developing domestic drug problem might desire to view the American experience as early warning for their military establishments.*

Global Threat: The drug threat, posed by worldwide production, distribution and consumption of illicit drugs impacts on our most precious natural resources—the youths of our nations. This problem is compounded by the early use of tobacco and alcohol. It is distressing to note that in the United States more than one third of our youngsters between the ages of 12 and 17 are using drugs and alcohol, the abuse of which is a major contributing factor to the increasing death rate of Americans between the ages of 15 and 24. Drugs most often abused include heroin, cocaine and hashish. These are of special concern; in particular the hazards posed by cannabis products, i.e., leafy marijuana, hashish and hash oil, as reflected in current medical research, including their disruptive nature on the maturation process of youths who tend to drop out of life when using these substances.

Our drug abuse programmes in Europe are carried out by the Army, Navy and Air Forces in Europe under the following project heads: *War on drugs, Zero tolerance and Counterpush.*

The joint command—USEUCOM—exercises oversight of the programmes:

- **Consolidates quarterly statistical reportings from the services;**
- **Chairs the tri-service personnel symposium which meets bi-annually to review the status of these and related personnel programmes; and**
- **Furnishes the services of the special assistant for drug enforcement matters (SADEM), as a resource agency dealing with the production of drug intelligence; the development of enforcement initiatives between military law enforcement and host nation authorities; and the coordination of drug abuse prevention programmes when assistance is requested by Nato allied forces.**

Our European programmes are carried out in compliance with Department of Defence (DoD) directives and aimed at achieving the DoD goal for our forces "to be free of the effects of alcohol and drug abuse." The DoD programmes are anchored in the federal strategy for prevention of drug abuse and drug trafficking. The strategy deals with the entire range of domestic problems and programmes; highlights the need for international cooperation, and includes in section VIII drug and alcohol abuse in the armed forces. The supply and demand aspects of the federal strategy relate to the two interdependent factors essential to generate drug abuse:

- Factor one is the desire, need or propensity of people to use drugs without proper medical supervision.

— Factor two is the availability of drugs from either the legal or illegal market.

Both factors are demonstrated by an extract of supply and demand data in the United States:

- We receive some 4.5 metric tons of heroin per annum and have an estimated 400,000 addicts.
- Cocaine smugglers bring in approximately 40-48 tons which are used by some four million people.
- Cannabis availability exceeds nine-thousand tons with users estimated at 22.5 million. About ninety percent of the illegal drugs consumed in the United States are of foreign origin. The illegal revenue produced by the above drugs is estimated to be 79 billion dollars.

Such large scale illegal transactions lead to the corruption of legitimate businesses and government officials; impact on the balance of payments since much of the money enters foreign markets; expand opportunities of organized criminal syndicates; and contribute to the growth of *drug-related criminality*. Illegal drugs are not a victimless crime!

National Security: The drug-related street crime has a direct impact on the security, welfare and morale of military installations and personnel. Wholesale availability of these drugs in western Europe can be seen from seizures reported by member countries to interpol:

- Heroin seizures exceeded one metric ton in 1980 and 1982, with this trend continuing in 1983 (461 Kg in first quarter). It is estimated that seizures account for only ten percent of the available market.
- Cocaine seizures reached 349 Kg in 1982 and exceeded that quantity during the first six months of 1983 with the seizure figure being 364 Kg.
- Cannabis products are available in multi-ton quantities as shown by seizures exceeding seventy tons per year since 1980. (33 tons during first 4 months of 1983.)

These three drugs are, of course, not the only ones available in the European countries where our (320,000) troops are stationed. While only nominal quantities are seized from our forces, in comparison to total availability, the majority of our seizures are in the Federal Republic of Germany where eighty percent of the forces are concentrated. By way of example, seizures from our forces in Germany are shown here:

- Heroin seizures dropped from a high of 802 Grams in 1978 to a low of 139 Grams in 1982. This trend has continued in 1983 with 37 Grams seized during the first six months.
- Cocaine seizures have fluctuated above the one two hundred Gram level since 1979. This trend continued in 1983 with 84 Grams being seized in the first six months.
- Cannabis seizures were highest in 1982 at 201 Kg. but dropped to 39 Kg. during Jan-Jun 83.

Troop Education: As will be subsequently noted, we introduced urinalysis testing for cannabis (Tetrahydrocannabinol, THC) in October 1981. All drugs of abuse have been the subject of intensive prevention actions since 1978. The objectives of our prevention programmes are to educate the total force; identify abusers, rehabilitate and return them to duty, or separate them from the armed forces. Because drugs are a pervasive problem without regard to age or status, we direct our educational efforts to the entire military community. Also, commanders and supervisors must be instructed in the ritual of, and type equipment used in drug abuse where they can recognize a drug environment. In troops' education we concentrate on newly arrived personnel. We have found that if a new arrival can withstand the pressure to use drugs for the first 6 to 8 months, not only will he abstain, but he will contribute to a positive drug free environment.

We find it very effective to orient and educate our people on command policy

concerning drug abuse. Drug abuse is illegal and, if caught using or selling, offenders will be punished. All can see the results of the enforcement of command policy—and swift, sure enforcement is a powerful deterrent to drug use. Hopefully, a combination of all of our educational programmes will create a positive peer environment to discourage drug use. Such an environment will feed itself and, we believe, is one long-range solution to drug abuse in the military. Our five identification systems involve actions by commanders and supervisors; people who identify themselves to command authorities; doctors who discover abusers during medical treatment; law enforcement actions; and, urinalysis.

Enforcement: To improve drug law enforcement, we have established central operation centres; intensified coordination with host nation police; increased personnel, support equipment and the number of drug detector dog teams. We conduct urinalysis testing for the drugs listed on this chart at the army laboratory in Wiesbaden, Germany, and at navy labs in the United States. As previously noted, we introduced cannabis (THC) testing in 1981. Our testing objectives are early identification of users; deterrence of experimental use; as a monitoring device for rehabilitation progress; and to develop data on prevalence of abuse in the military.

With further reference to prevalence data and continuing assessment of detection and prevention programmes, we track the number of users identified by drug type; rehabilitation entries; trial by military court-martial; non-judicial actions by commanders; and, the number of people administratively separated for drug abuse. We also conduct personal opinion surveys to gather information on the types of drugs available and frequency of use during the last 30 days or 12 months. These anonymous data are validated and compared with other data to give us the best possible overview of the drug situation among the forces. We use these data to fine-tune our programmes. The DoD-conducted personal opinion surveys in 1980 and 1982. This comparative extract reflects a decrease of 34 percent in the use of any illicit drug during the past 30 days, as reported by our young enlisted people (El—E5). Heroin use remained at the one percent level, while cocaine dropped by 43 percent, and cannabis use dropped by 40 percent. While we are encouraged by these and other indications of progress, we are well aware that the continuing wholesale availability of high purity illicit drugs on the world market mandates continued extensive efforts at all levels of society through international cooperation.

Drug Dependence

By

Dr. Malik H. Mubbashar

Publishers: Psycho Publishers, Rawalpindi.

Price: Rs. 40.00

Distributors: Pak-American Commercial Ltd., Zaibun Nisa Street. Saddar, Karachi and 53/2, Kashmir Road, Rawalpindi.

People get addicted to drugs (narcotics) for various reasons. It may be to satisfy the curiosity or acquire a new experience in thrill, pleasure or change from boredom. It may be to express one's independence or dissent. It may be to seek escape from reality or to rejuvinate oneself. Often it is the result of prolonged medication necessitating the use of such habit forming drugs.

There can be several other reasons also for the drug addiction which in recent years has become a major social concern throughout the world. Pakistan is not an exception. What is specially disturbing about Pakistan, however, is that while some extremely dangerous drugs are abundantly and freely produced and marketed in this country the social system and the age old traditions prevalent here also encourage the use of these drugs especially in the rural society which constitutes the bulk of the population.

According to Mr. Mairaj Husain, Chairman of the Pakistan Narcotics Control Board, at least 1.3 million people were indulging in the drug abuse in Pakistan at the beginning of 1984. Approximately 100,000 of them were addicted to heroin, the most lethal of them.

Extensive efforts are being made at present by Pakistan Narcotics Control Board to fight the scourge of drug abuse in the country including the cultivation and production of drugs, their traffic and trade, their misuse and indiscriminate administration by the medical profession. Among other things useful literature is being made available on this subject to inform and motivate people to join the PNCB campaign for the control and prevention of drug situation in Pakistan. A recent addition to this literature is a 150 page book, "DRUG DEPENDENCE" written by Dr. Malik H. Mubbashar, which is meant to educate the general medical practitioner and the family physician on this subject and to create awareness of the need and method of the prevention of drug abuse.

Generally the subject of drugs is discussed either in a social context or as a moral issue. The strictly medical and clinical aspect of this problem is often overlooked. Dr. Mubbashar's book is an expert treatise on the pharmacological and therapeutical aspects of the drugs in Pakistan.

After giving a short historical background of the use of drugs in Pakistan as a social phenomenon and its current dimensions which he has illustrated statistically

he discusses, in depth, the pharmacological and toxicological concepts concerning the drugs, almost item by item. He deals with the problems which the medical practitioners are commonly facing with both the patients and the drugs—the dilemma which a doctor in confronted with almost every day and in almost every case while treating a patient for any of his ailments: to prescribe or not to prescribe a drug, which drug, in what dosage and for what duration.

Besides the drugs he also discusses in the book the various ailments and diseases item by item which necessitate the prescription of drugs. The discussion includes drug emergency, risks, benefits, and social repercussions. He recommends guidelines to safe and appropriate use of certain usable drugs.

In his definition of drug Dr. Mubbashar classifies alcohol as a drug belonging to the same category as heroin. "Any substance, which when taken into a living organism, may modify one or more of its functions" is a drug. Like other drugs, alcohol is such a substance. This classification is necessary because of a general impression that alcohol is not as abusive as some other drugs. This impression needs to be corrected in the context of the acceptance of alcohol in modern life as something innocuous and harmless.

Dr. Mubbashar warns that the drug dependence represents a maladjustment to the problems of life. He gives a complete analysis of this dependence as an interaction between the individual, the drug and environment. This analysis gives an insight in all the three essential components which constitute the world of drug.

The treatment and rehabilitation of the drug dependent persons is a recent feature in Pakistan where until the other day the drug problem was treated purely as a moral issue. The book lays down six fundamental elements in the management of drug dependent persons. They are: (1) Diagnosis, assessment and enhancing motivation, (2) formulation of individualism and management plan, (3) detoxification and management, society medical and psychiatric complications, (4) maintaining abstinence, (5) rehabilitation, follow-up and social re-integration and (6) crisis intervention.

According to Dr. Mubbashar the drug dependent patient may present to the physician with certain emotional symptoms which a physician is likely to overlook. Dr. Mubbashar says that eyes cannot see what mind does not know and, therefore, quite often even the leading questions do not provide correct history of the drug dependents. For instance, the physician may ask, "Do you take drugs?" The patient may reply, "yes, but it is no problem." Some patients may respond, "yes, but I can quit any time I want." To this the physician may counter a question, "really! tell me more about it." With such probing questions considerable supportive evidence can be obtained which would provide useful history of the patient's drug addiction and which would help in detoxification and the general management of his drug use and misuse.

Dr. Mubbashar tells the entire methodology and the treatment of drug addiction and detoxification of various groups together with what should be avoided and discouraged. He concludes his discussion by trying to answer five searching questions connected with the puzzle of drug dependence. These questions are:

(1) What and why not drugs?

(2) On whose side are you, doctor?

(3) What to reduce—the supply or the demand of drugs?

(4) What is the future of the unchecked epidemics? and

(5) Can the barriers—the law, society, family—stop?

The book "Drug Dependence" is recommended as a necessary reading material for both the doctors and the patients and those others who may be interested in the problem of drug abuse which is reaching at present alarming proportions in Pakistan and is threateming the society at all levels and orientations.

—*Ibnul Hasan.*

Drug Abuse & Prevention: Commander's Hand Book

I. Purpose. The purpose of this handbook is to explain the Alcohol and Drug Abuse and Prevention and Control Programme (ADAPCP) to commanders. This reference is not intended to replace AR 600-85 (Alcohol and Drug Abuse Prevention and Control Programme).

II. US Army Policy Concerning Alcohol and Drug Abuse

Basic Philosophy

Alcohol and drug abuse are incompatible with military service.

Goal

"Free the Army of the Effects of Alcohol and Drug Abuse.

Strategy

Centralized Management—Decentralized Execution.

Policy

1. All available lawful means will be used to identify and prevent the possession, use/abuse, sale or distribution of illegal drugs.

2. Persons who are alcohol or drug dependent will be denied entry into the army and into civil service. Persons who are discovered to be drug dependent will be processed for separation from the army.

3. Officers/Warrant Officers, the top four enlisted grades, and all second time drug abusers (regardless of grade) will be processed for separation from the Army if they are identified as drug abusers.

4. Persons whose unsatisfactory behaviour or job performance is attributed to alcohol or drug abuse may be afforded the opportunity for rehabilitation. Persons who, in the opinion of their commander or supervisor, have not demonstrated the potential for continued service, will be processed for separation.

5. Persons enrolled in rehabilitation whose on/off duty performance and/or rehabilitation progress does not warrant further rehabilitative efforts will be considered for separation IAW appropriate regulations and/or appropriate discipline under the UCMJ.

6. Persons identified as selling or distributing illegal drugs will be considered for appropriate discipline under the UCMJ or processed for separation for misconduct, IAW appropriate regulations.

7. Persons in sensitive duty positions performing unsatisfactorily due to drug or alcohol abuse will be subject to loss of clearance/certification, loss of incentive/special pay, withholding of step increase, and separation/termination.

Concept of the Programme

The Alcohol and Drug Abuse Prevention Control Programme (ADAPCP) is a *command* programme. Personnel who are identified as alcohol and drug abusers may be afforded the opportunity for rehabilitation. However, personnel who, in the opinion of their commander or supervisor, have not demonstrated the potential for continued useful service, will be processed for separation. Personnel enrolled in rehabilitation whose duty performance and/or prognosis for rehabilitation does not warrant further rehabilitative efforts will also be processed for separation. Family members experiencing alcohol or drug related problems may adversely affect the service member's duty performance. Commanders should be alert to the problems in the

family and ensure that family members are aware of available ADAPCP services.

1. PREVENTION

Prevention of alcohol and other drug abuse includes all measures taken to reduce to the lowest possible level, the abuse or misuse of alcohol and other drugs. The three major prevention areas are:

(a) Alcohol and drug abuse control actions (e.g., inspections, command presence in billets, policy on alcohol in billets); (b) Education and training; (c) Law enforcement.

Prevention is the key. Commanders at all levels are responsible for providing effective alcohol and drug abuse prevention efforts in their community and unit.

2. IDENTIFICATION, REFERRAL AND SCREENING

A. Identification: Early identification of the alcohol or drug abuser is an important aspect of maintaining unit cohesion and unit readiness. Abusers may be identified by:

1. The chain of command;
2. Biochemical testing;
3. Medical personnel;
4. Military or civilian law enforcement;
5. Self referral.

B. Referral: All individuals identified as possible alcohol or drug abusers will be referred to the ADAPCP for screening, to determine if there is alcohol or drug abuse involved. The requirement to refer soldiers to ADAPCP for screening does not preclude the commander from taking appropriate administrative or disciplinary actions prior to screening. Prior to ADAPCP screening, the unit commander or designated representative will interview the individual.

C. Screening: An initial screening interview by the ADAPCP staff is required for all individuals identified for possible alcohol and drug abuse. Individuals identified by urine positives will be referred to the ADAPCP for screening and medical evaluation by a physician unless the urine positive is for THC (the active ingredient in marijuana) alone. A medical evaluation is also required for individuals suspected of alcohol or other drug dependency, and prior to entry into Track III (residential treatment). The commander, ADAPCP staff, or service member may request a medical evaluation by a physician at any time to determine the extent of alcohol or other drug abuse by the service member.

Except for self referrals, all personnel identified as drug dependent (except alcohol) and personnel in the grade of E-6 or higher who are identified as drug abusers (except alcohol) after their screening, will be processed for separation.

If, after the initial ADAPCP screening, a commander believes that a service member does not have the desire to be rehabilitated or, based on the member's overall record, does not have the potential for future service, the service member will be considered for separation.

3. REHABILITATION

As soon as possible after the initial screening process (to include medical evaluation, if required) a rehabilitation team will convene to determine the appropriate disposition of the client's case. The rehabilitation team will, as a minimum, be composed of the client, the client's commander or the commander's designee, and the ADAPCP counsellor. At the first meeting of the rehabilitation team the ADAPCP counsellor will recommend to

the commander appropriate disposition of the client's referral. One of the following or a combination of the following will be recommended:

(a) No ADAPCP services required at the present time and recommend soldier be returned to normal duty; (b) Unit counselling by the commander or the commander's designated representative; (c) Other action e.g., referral to another agency; (d) Enrolment in one of the following rehabilitation tracks:

(1) Track I, Rehabilitation awareness education and group counselling, as required. Not to exceed 30 days; however, individual can be declared a failure prior to 30 days, based upon duty performance or lack of progress in the ADAPCP.

(2) Track II, Intensive individual or group counselling. A minimum of 30 days; however, individual can again be declared a rehabilitative failure prior to 30 days.

(3) Track III, Residential medical treatment with nonresidential follow-up. Prior to enrolment, an individual must be evaluated by a physician. Enrolment in this track is for 360 days unless declared a rehabilitation failure.

Those personnel enrolled in the rehabilitation process and evaluated as not demonstrating further rehabilitative potential will be separated under the provisions of chapter 9, AR 635-200 or chapter 5, AR 635-100.

IV. RESPONSIBILITIES

Implementation of the Army Alcohol and Drug Programme is the responsibility of commanders and the ADAPCP staff. Individual responsibilities are as follows:

1. Battalion/Separate Company Commander:

(a) Monitors of ADAPCP related prevention and education programmes at company level; (b) Assigns the function of Alcohol and Drug Officer (ADO) to an officer as a collateral duty; (c) Monitors the mandatory processing for separations of drug abusers as indicated in 2f below.

2. Company Level Commander:

(a) Appoints a Unit Alcohol and Drug Coordinator (UADC); (b) Ensures the chain of command identifies personnel needing referral to ADAPCP; (c) Implements the unit's biochemical testing programme; (d) Monitors the progress of ADAPCP clients; (e) Implements a unit Drug and Alcohol Prevention/Education Programme; (f) Processes for discharge personnel not worthy of further rehabilitative effort, personnel identified as drug dependent, all personnel in the grade of E-6 or above identified as drug abusers, and all second time drug abusers regardless of rank.

3. Battalion Level Alcohol and Drug Officer (ADO):

(a) Monitors the battalion biochemical testing programme; (b) Maintains liaison with the counselling centre; (c) Keeps commander informed of the trends in alcohol and other drug abuse.

4. Unit Alcohol and Drug Coordinator (UADC):

(a) Develops, coordinates, and/or delivers preventive alcohol and drug training within the unit; (b) Assists with in-briefing of new personnel regarding the Army and Installation policy on alcohol and other drug abuse; (c) Manages the unit biochemical testing programme; (d) Per-

forms other administrative functions related to the ADAPCP as directed by unit commander.

5. The Installation ADAPCP Staff can assist unit commanders in implementing the Army and Installation Alcohol and Drug Programme.

(a) The ADAPCP staff will normally consist of the following individuals:

(1) Installation ADCO—Responsible for developing, coordinating, and recommending local ADAPCP policies and procedures.

(2) Civil Programme Coordinator—Responsible to the ADCO for the civilian aspects of the ADAPCP.

(3) Education Coordinator—Responsible to the ADCO for administering an alcohol and other drug abuse prevention education and training programme.

(4) Clinical Director—Responsible to the ADCO for implementing and monitoring the rehabilitation aspects of the ADAPCP.

(5) Rehabilitation Counsellor—Responsible to the Clinical Director for providing individual and group counselling sessions for clients in all phases of rehabilitation.

V. EDUCATION

The best way to prevent alcohol/drug abuse in your unit is to stop it before it starts. Make sure your soldiers understand you enforce Army policy regarding alcohol and drug abuse by explaining that policy to them. Start with the first day a soldier arrives in your unit.

1. Welcome new soldiers to your unit with the intent of building pride and spirit the second they arrive (the first impression is a lasting one). Let soldiers know that alcohol and drug abuse detracts from:

(a) Mission of the unit and the part he or she will play in that mission; (b) Combat Readiness; (c) Physical Fitness; (d) Discipline; (e) Appearance; (f) Unit Pride; (g) Individual Responsibility.

2. Let your soldiers know what your expectations are and that you will do everything possible to prevent alcohol and drug abuse in order to keep them physically fit and ready to accomplish their mission. Provide your soldiers alternatives to alcohol and drug abuse by:

(a) Organizing on and off duty athletics (Company to Post level activities); (b) Having unit trips; (c) Emphasizing the use of hobby shops, autocraft shops, libraries, movie theatres, gymnasiums, and recreation service centres; (d) Emphasizing personnel growth activities which will deter drug usage.

3. Tell your soldiers you will have:

(a) A strong PT programme; (b) Health and welfare inspections; (c) Supervisors available in the barracks after duty hours; (d) Only self-controlled drinking, if they drink at all. It is *not* an Army tradition to get drunk; (e) Law enforcement (drug suppression teams); (f) Swift and fair punishment if alcohol and drug rules are violated; (g) Clean and attractive living and working areas.

4. Insure alcohol and drug education is a frequent topic of conversation at Commander's Call. Contact your ADAPCP Education Coordinator for assistance.

VI. COMMANDERS OPTIONS

1. If someone in your command is identified as an abuser, you can do one or more of the following (remember any individual identified as an abuser must be screened):

(a) Take appropriate administrative action:

(1) Denial of pass privilege.

(2) Bar to reenlistment.

(3) Corrective training.

(4) Admonition or reprimand.

(5) Removal from the Personnel Reliability Programme or other special programmes.

(6) Withdrawal of separate rations.

(7) Denial of permission to live off-post.

(8) Suspension or revocation of security clearance.

(b) Require motivational education for the soldier; (c) Administer non-judicial proceedings or judicial proceedings (Courts-martial); (d) Refer the individual to the ADAPCP for rehabilitation or treatment. You will make all decisions as to the involvement your soldier will have in the ADAPCP. If your decision is to let the soldier enter the ADAPCP and you do not see the desired behavioural change in the soldier, separation may be appropriate.

VII. SPECIAL SITUATIONS

Commanders should be familiar with the following or they could violate the rights of their soldiers.

1. BIOCHEMICAL TESTING (URINE TESTS AND BREATHALYZER TESTS)

(a) Identification of alcohol and drug abuse is accomplished through a variety of methods. One method, biochemical identification, is both a deterrent to experimental use and an accurate method for identifying abusers; (b) The decision to require a biochemical test is a command judgement. However, commanders should consider requiring individual service members, parts of units, or entire units to submit to urine or alcohol testing for any of the reasons listed below:

(1) When there is reasonable suspicion a member is using a controlled substance or has a blood alcohol level of .050 per cent or above while on duty, a urine or alcohol test for the medical purpose under Military Rules of Evidence 312(f) of determining the member's fitness for duty and the need for counselling, rehabilitation, or other medical treatment.

(2) A urine or alcohol test as a search or seizure.

(3) A urine or alcohol test of part of the unit, or entire unit, as an inspection for the purpose of preserving the health of the service member inspected.

(c) Unit commanders should coordinate with the installation ADCO for required support of urine tests, e.g., availability of urine specimen bottles, to ascertain if the servicing drug testing laboratory can process the number of specimens to be collected, and to obtain the forms for insuring chain of custody is maintained on all urine specimens. All urine specimens require processing according to chain of custody procedures; (d) Commanders will refer all individuals with urine positives and alcohol abusers to the ADAPCP for a formal initial screening interview. This does not preclude appropriate disciplinary or administrative actions; (e) There is a possibility of obtaining a second urinalysis positive for drug abuse based upon the residual effects that created the first urinalysis positive. Because detection levels are influenced by frequency of use and size of the dose, commanders should insure there is a 30 day interval between specimens from the same donor tested for Marijuana/Hashish and a 15 day interval for all other drugs.

2. LIMITED USE POLICY

(a) This policy allows your soldier to discuss a substance abuse problem, without fear of being punished, with:

(1) The chain of command.

(2) A medical doctor, if emergency treatment is required.

(3) The ADAPCP staff.

(b) The limited use policy must be explained and invoked by the commander to any soldier who comes forward and wants help for an alcohol or drug problem. It must *also* be explained to any soldier you want to sent to the ADAPCP;

(c) **Caution!** After you are aware your soldier is talking to you about his/her illegal drug use, inform the soldier that the limited use policy cannot be used if any of the following conditions exist:

(1) An alcohol/drug investigation was started on him/her before the individual came forward to request self referral to the ADAPCP.

(2) A urine sample was taken from the individual but the results are not known.

(3) Any information given about planning to use illegal drugs in the future or any information given about other illegal acts (trafficking, smuggling, stealing, etc.) can be used against an individual in non-judicial or judicial actions.

(d) Ensure the service member understands that limited use becomes effective at the time the member asks for help, and admitted use or possession of illegal drugs or abuse of illegal drugs committed after this point can be used for administrative or disciplinary actions.

3. THE SMART COMMANDER

(a) Knows:

(1) That drug abuse is widespread.

(2) That alcohol abuse is a major problem in the army.

(3) The best information available sets habitual/frequent marijuana use at 10 per cent.

(4) That problems among family members can also affect the soldier's performance.

(5) The ADAPCP counsellor is his/her best resources for success.

(b) Remembers:

(1) Prevention

(2) Education

(3) Identification

(c) Decides:

(1) Administrative action

(2) Education

(3) Non-judicial or judicial action

(4) Separation etc.

Use of Mandatory Urine or Alcohol Breath Testing Results

Ways a Commander may direct Urine or Alcohol breath test	Referral to ADAPCP	Disciplinary action under UCMJ	Characterization of discharge	Other[1] administrative action
To determine fitness for duty and the need for counselling, rehabilitation, or other medical treatment	YES	NO	NO	YES
Participation in ADAPCP	YES[2]	NO	NO	YES[3]
Search or seizure under military rules of evidence 312, 314, 315, and 316	YES	YES	YES	YES
As part of a military inspection under military rule of evidence 313	YES	YES	YES	YES

Ways a Physician may direct Urine or Alcohol breath tests	Referral to ADAPCP	Disciplinary action under UCMJ	Characterization of discharge	Other[1] administrative action
Ascertain whether a member requires counselling, treatment, or rehabilitation for drug or alcohol abuse	YES	NO	NO	YES
Other valid medical purpose	YES	YES	YES	YES

1 For example, withholding pass privileges (AR 630-5); admonition and reprimand (Chapter 2, AR 600-37); revocation of security clearances (Chapter 10, AR 604-5); and bar to reenlistment (AR 600-80), see generally FM 27-10, Legal Guide for Commanders.

2 There is a legal difference between fitness for duty (which is based on reasonable suspicion) and search and seizure (which is based on probable cause). See your local SJA if in doubt.

3 For members enrolled in ADAPCP, can be used to determine whether further rehabilitation efforts are practical UP Chapter 9, AR 635-200.

4 However, for members enrolled in ADAPCP, discussion of ADAPCP participation in EERs and OERs must be in accordance with AR 623-105 or AR 623-205. In addition, the fact that a member is participating in ADAPCP should be revealed only to those with an official need to know, see paragraph 6-1b.

Drug Addiction on Campuses

INDIA

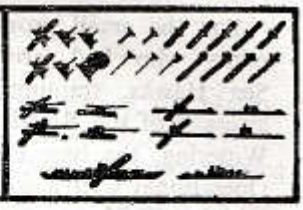
A study of drug addiction on campuses conducted by the Indian Council of Medical Research found that if alcohol and tobacco were excluded, the percentage of abuse was 23.8 for men students and 11 for women. Addiction related mostly to tobacco and alcohol, although in respect of drugs, cannabis was popular among men and analgesics among women. In respect of other drugs, the study noted that amphetamines, barbiturates, opiates, LSD and cocaine were consumed in "an experimental manner". The sample study made by a doctor of a mental hospital in Agra put the percentage of drug users at 56 with the incidence among men being five times that for women. The disparity in percentage may be because of the limitations of the samples collected. To a specific question in the Rajya Sabha in May this year on campus drug addiction, the Government's reply was that an overwhelming percentage of students did not take any drugs. But a recent letter (July 5) addressed by the Union Education Ministry to the Delhi University expresses grave concern over the growing incidence of trafficking and abuse of drugs, particularly among students. University officials say that both the Government and the University have been worrying over this trend for some years now. The United Nations bulletin on narcotics states that drug abuse is the highest among the world's male medical students, the substances used being alcohol, barbiturates, mandrax, equanil and librium besides cannabis, bhang and charas.

What the Government needs to do is more systematically study the incidence of addiction. This is no doubt not going to be easy, but the Union Education Ministry's letter should provoke such enquiries in other universities as well. The point to be remembered is that the effectiveness of the control measures depends on taking concerted preventive and curative action before the drug abuse develops into a large-scale menace. At the instance of the Union Ministry of Social Welfare, debates and plays to bring out the evil effects of such abuse are being sought to be popularised, but the response, as evidenced in the case of Delhi students, is disappointing. Many reasons are adduced as to why the youth go for drugs, the chief of them being frustration at home, school or college or mere misplaced curiosity which is sought to be satisfied by experimental ingestion which, after a stage, enlarges itself into a habit. One view is that the spread of addiction, of whatever dimension, is helped by the general atmosphere in hostels. The addict and the pedlar are not too difficult to identify. An effort should be made to spot them and intervene sharply and in an exemplary way before the situation gets out of hand. As for alcoholism, a lot more is achievable in containing it provided the teacher-parent associations strive to do their best. How effectively the older people set a better example matters a great deal in correcting adolescent attitudes. There is so much said in India about the psychological pressures which an unimaginative curriculum and instruction and the unequal and limited job opportunities are reported to be imposing. To educate the young to tackle these pressures without psychological collapse is one of the prime tasks of teachers as well as of parents.

—The Hindu, International, week ending Aug. 11, 1984.

DJ Newsletter

WEAPONS • DEALS • RESEARCH • DEVELOPMENT



INDIAN NAVY SEA HARRIERS ARRIVE AT GOA

(*Delayed*)

The first three Sea Harrier FRS Mk 51s of 300 (White Tiger) Indian Naval Air Squadron arrived at their new base of Goa in December after a ferry flight of 4,800 nautical miles from the UK. Total flying time was 10 hours and 13 minutes.

Led by BAe Test Pilot, Lt Cdr Taylor Scott RNR, the formation left Royal Naval Air Station Yeovilton in Somerset, UK on December 13, 1983, for the first leg of the journey — to Luqa airport, Malta, where they nightstopped and were turned round for the next day's sector, according to information just received from British Aerospace sources.

Flying in Nos 2 and 3 positions were Cdr Arun Prakash (300 Squadron's CO) and Lt Cdr Sanjoy Gupta.

From Malta, the formation flew on via Egypt to Dubai, the second overnight stop. The third and final sector was the longest part of the delivery, taking the aircraft direct to India, landing at the Goa Naval Air Base where work on the facilities for the new Sea Harrier equipped 300 Squadron is approaching completion.

The first export customer to operate the Sea Harrier, the Indian Navy posted pilots and engineers to the UK for V/STOL conversion and engineering/maintenance training.

The first small group of Indian Navy personnel arrived in the UK to commence their training in October 1982 followed by additional groups during subsequent months, with the main party arriving in December of that year — the same month that the Indian Government took delivery of their first aircraft. The total number eventually to be trained comprised some 180 officers and men.

By February 1983, the Indian Navy complement at RNAS Yeovilton had grown to over 100 personnel and two aircraft. From this time the pace of training began to accelerate.

For the small group of Indian Navy pilots who had originally been flying Sea Hawks, training began under the auspices of the Royal Air Force at RAF Wittering, the base that houses No. 233 Operational Conversion Unit, where their initial V/STOL conversion was done.

Weapons System

Having mastered flying a V/STOL aircraft in the three month conversion course, the first two small groups of Indian Navy pilots moved on to RNAS Yeovilton. Here they converted to the Sea Harrier and then were taught to use the aircraft as a weapons system, learning many of the tactics and techniques employed by the Royal Navy's own Sea Harrier units.

At Yeovilton, they joined 899 Headquarters and Training Squadron where many of the instructors were able to pass on their considerable experience and knowledge — some of it gained during the Falklands conflict when the Sea Harrier came of age as a proven weapon system.

Altogether, the Indian Navy pilots spent about a year at Yeovilton during which they practised weapon delivery and air-to-air combat. They also had the opportunity of carrying out Ski-jump launches at sea from the 12 degree ramp of HMS Hermes, as and when the RN

LEADING PARTICULARS

	Harrier GR 3	SEA HARRIER FRS 1	HARRIER II
Span	25 ft. 3 ins.	25 ft. 3 ins.	30 ft. 4 ins.
Length oa	46 ft. 10 ins.	47 ft. 7 ins.	46 ft. 4 ins.
Height	11 ft. 11 ins.	12 ft. 2 ins.	11 ft. 8 ins.
Wing area	201 sq. ft.	201 sq. ft.	230 sq. ft.
Wheel track	22 ft.	22 ft.	17 ft.
Max Take-off weight	25,200 lb.	26,200 lb.	29,750 lb.
Operating weight empty	13,535 lb.	14,052 lb.	12,750 lb.
Max warload	8,000 lb.	8,500 lb.	9,200 lb.
Internal fuel	5,060 lb.	5,060 lb.	7,500 lb.
Max external fuel	5,300 lb.	5,300 lb.	7,900 lb.
First flight	August 1966	August 1978	November 1981
Power Plant	Pegasus 103	Pegasus 104	Pegasus 105
Engine thrust	21,500 lb.	21,500 lb.	21,750 lb.
'g' limits	-7.8/—4.2	+7.8—4.2	+7/—2.8
Max speed: (sea level)	635 kt.	635 kt.	590 kt.
High altitude	Mach 1.3	Mach 1.3	Mach 1.1
VTO payload	5,000 lb	5,000 lb.	6,750 lb.
STO distance at max TOW	1,000 ft.	1,000 ft.	1,000 ft.
Ferry range	1,850 nm.	2,000 nm.	2,060 nm.
Missions:			
HI-LO-HI +4,400 lb.	360 nm.	300 nm (strike)	600 nm.
LO-LO +4,400 lb.	200 nm.	—	
CAP for 1.5 hrs.	100 nm.	100 nm.	100 nm/3 hrs.
HI-HI**	—	400 nm. (intercept)	

** Mission figures have been rounded out and should be considered approximate.

carrier was available. In addition, the Indian Navy pilots also utilised the training ramp installed at RNAS Yeovilton.

While the first three Sea Harrier Mk 51s are currently in India, the remainder of the aircraft are still in the UK participating in the flying and maintenance training of the last groups of Indian Navy personnel.

It is anticipated that all the Indian Navy aircraft will have left the UK by the summer of this year and returned home to bring 300 Squadron up to current full strength.

The unit is scheduled to be fully worked-up and operational by the end of the year and will be deployed from their land bases as well as the aircraft carrier INS Vikrant.

The Indian Navy ordered six Sea Harrier Mk 51 and two Harrier T Mk 60 two-seat trainer aircraft. The contract was awarded in 1979 — the year when the Sea Harrier FRS Mk 1 first entered service with the Royal Navy in 700A Naval Air Squadron.

Arab Organization for Military Industry

The Arab Organization for Military Industry, together with Egyptian military experts and some professors from Egyptian universities, is reported to have improved the "Swingfire" anti-tank missile system in order to meet the requirements of the Egyptian Army. Furthermore, this same organization has produced 15 Alpha Jet aircraft in one year (1983).

The first Gazelle military helicopter, built in Egypt was handed over to the Egyptian Air Force at a recent ceremony presided by General Abdel Halim Abou Ghazala, vice prime minister of Egypt and minister of defence and military industry and attended by the representatives of 12 Arab and African countries.

Mr. Jean Martre, Chairman and Managing Director of Aerospatiale, as well as Engineer General Cauchie, representing the French minister of defence, were present at the ceremony.

In his speech, General Abou Ghazala indicated that: "This helicopter is the fruit of close Arab collaboration which we intend to continue and even reinforce". He added that "the Egyptian Army offers all kinds of help to the Arab Organization for Military Industry, which has built the helicopter, in order to back up our Arab military production and our national economy."

Mr. Martre underlined the fact that: "the production of this type of helicopter would increase the combat capacities of the Egyptian Army" while General Cauchie expressed his satisfaction at the high quality of the military equipment produced in Egypt.

He further added that: "all spares also made in Egypt fully complied with the specified standards".

A demonstration followed, during which the qualities of the Gazelle helicopter were displayed.

Finally, General Abou Ghazala revealed that the Egyptian Army had done everything to secure a contract enabling the Brazilian aircraft "Embraer" to be built

in Egypt, since it was a very modern training machine.

It may be added that the manufacture of the Gazelle joins that of the "Fahd" armoured vehicle, and of the "Falcon", "Falcon 18" and "Falcon 30" ground-to-air missiles, all built by the Arab Organization for Military Industry.

Developments in High-Explosives for Artillery Shells

Sigurd Back

Chief Engineer, Research and Development Department, Bofors Nobelkrut, Bofors, Sweden.

Despite the large number of explosive chemical compounds available, TNT has remained the first choice for filling high-explosive artillery shells for 80 years. This popularity is based on the explosive's performance, stability, cost and large-scale production.

More recently, RDX has become the second most widely used filling in terms of volume, although its use in compositions with TNT probably represents the most important application. In this article the author discusses recent development work by Bofors AB of Sweden to improve further the performance and safety of these long-established explosives.

With a melting point of 80°C, trinitrotoluene (TNT) can be cast in shell casings; and yet it can withstand high ambient temperatures when the ammunition is stored or in service. However, thermal stability of the ammunition charge depends on the purity of the filling. Commercially available TNT often contains small amounts of impurities such as asymmetric TNT, dinitrotoluene and sometimes mononitrotoluene. Such impurities form eutectic mixtures with the pure symmetrical TNT, lowering the melting point.

Stored ammunition can reach high temperatures in tropical regions, or in summertime in temperate climates. If the filling is an unsuitable eutectic mixture, such temperatures may be high enough to cause exudation. The effects may include the migration of explosive compounds into potentially dangerous areas, such as the screw thread of the fuse. Cracks and other voids may also appear in the filling, including the possibility of the filling separating from the base of the shell. Premature detonation then becomes possible. To minimise exudation, Bofors Nobelkrut uses a production method which gives high-purity TNT. Setting point indicates purity, and the setting point of above 80.6°C achieved by Bofors corresponds to the lowest exudation measured by the standard test employed in the German Federal Republic. Bofors Nobelkrut recently announced their decision to build a new factory in Karlskoga for the production of high-purity TNT.

Casting problems

Molten TNT solidifies as highly-oriented columnar crystals with their longest axis perpendicular to the sides of the container. This coarse grain-structure is unsuitable for artillery-shell fillings. The material is inherently weak and brittle, and its lower density, compared with a more homogeneous filling, reduces the mass of the charge and its willingness to detonate.

As it solidifies, liquid TNT contracts by about 12%. With a coefficient of thermal expansion six times that of steel, the filling in a shell will contract more than the shell case as they both cool. In addition, the TNT crystals themselves have different coefficients of thermal expansion in various

planes which create internal strains under thermal-cycling during storage.

With these properties, quality control of TNT shell fillings is a time-consuming task requiring very careful scrutiny. The most dangerous are base separation (i.e. the formation of a void between the base of the shell and the explosive filling) and other cracks and cavities. The high acceleration of the shell in the bore of a modern gun produces inertia forces on the filling which are sufficient to close voids with an impact large enough to cause premature detonation.

Slurry filling

Ammunition manufacturers in many countries have developed filling techniques to offset these problems. To overcome the coarse grain-structure, TNT slurries were introduced. The technique, also known as 'creamed' or 'poured cloudy' casting, makes use of a suspension of TNT particles in the melt. The particles are produced either by cooling and agitating the molten TNT or by adding flakes of solid TNT to the melt. The consistency of the slurry is critical in this technique, and the correct content of solid particles depends on the size and shape of the particles themselves. The correct moment to pour the melt can be determined only by the skill and experience of the operator. Because the slurry is poured at close to its setting point, the entrance to the shell-case must be heated to prevent solidifying TNT from blocking it. However, this heat melts the solid particles in the slurry producing a localised coarse grain-structure.

Hexanitrostilbene

It has long been realised that an alternative to the slurry technique is to add an agent to the melt which would create the nuclei for the formation of smaller, homogeneous crystals. The search for such a nucleating agent was unsuccessful until Bofors pioneered the use of hexanitrostilbene (HNS). This additive proved to be very effective, changing the large, oriented crystals to fine homogeneous grains.

HNS is a derivative of TNT, its molecule consisting of two TNT molecules bonded by a double link at the methyl group. Its melting point is 320°C, compared with 80°C for TNT. It also has a low solubility in molten TNT of only 0.2% at 85°C. The efficiency of HNS as a nucleating agent depends on its complex crystallographic and molecular relationship with TNT, and on its fine particle-size.

As an additive HNS is compatible with TNT and RDX, and the explosive properties remain the same. HNS is also very stable. Using HNS, Bofors has poured TNT from a clear melt or very thin slurry, obtaining a fine-grained cast with no preferred orientation. Compressive strength of the filling is four times that of TNT poured clear and higher than a slurry filling. The density is similar.

The improved physical properties reduce the dangerous phenomenon of base separation. The HNS filling can withstand the forces generated by its own contraction, while adhering strongly to the inside of the shell case—which is of course contracting less, due to the difference in thermal expansion coefficients. Cavities and porosity in the filling, which can be caused by entrapped air in a thick slurry, are minimised by the clear or thin-slurry casting possible with HNS. The ability to achieve fine grain-structures with a clear melt eliminates the operator's skill associated with slurry pouring and facilitates automation of the process. Bofors is already using TNT with HNS in an automated filling line.

RDX/TNT compounds

After TNT, RDX is the most widely used military explosive. Because of its higher sensitivity to shock, it must be moderated for military use. Having also a high melting point (around 200°C) and a strong tendency to deflagration, it cannot be cast like TNT, but when moderated with wax or polymers it can be press-moulded for smaller charges.

However, the major application of RDX is with TNT (and, sometimes, with a wax moderator) in such compositions as Cyclotol, Composition B or, with the addition of aluminium powder, HBX. These compounds can be cast. With Cyclotol compounds, the highest-possible RDX content is often desirable to exploit the explosive's strength, which is considerably greater than that of TNT. Initially, unfavourable crystal shape and size-distribution limited RDX concentrations to around 50%. However, development of crystallisation techniques has resulted in the ability to produce compact crystals plus consistent control of grain-size, which can be 'tailored' to specific duties. For example, Composition B contains 59.5% RDX, 39.5% TNT and 1% wax and combines 'pourability' with a low degree of sedimentation, giving consistent RDX content throughout the charge. The wax moderator has also been 'tailored' so that it spreads evenly.

Sedimentation casting

When the maximum RDX content is required—for example in shaped charges and other high-performance applications—sedimentation is encouraged by using coarser RDX crystals. The resulting fast sedimentation produces a dense concentration of RDX. Typically, Cyclotols with 65% or 70% RDX will produce concentrations of about 75% RDX in the poured charge.

HNS in RDX compounds

The problems of premature detonation due to set-back pressures created in the charge by the high acceleration of modern artillery, particularly in the larger calibres, have been described earlier. With Composition B, the most widely used RDX/TNT high-explosive for artillery shells, there is a slightly greater risk of premature detonation than with a TNT charge. Testing and practical experience have shown that ignition at a base separation will occur at similar set-back pressures, but that propagation of ignition is faster with Composition B making premature detonation in the barrel more likely.

Improving wall-adhesion reduces base separation but exacerbates the greater tendency of cast Composition B to crack, compared with pure TNT. This cracking takes place along the 'tree structure' created in the castings. The addition of HNS to Composition B produces the characteristic fine unorientated crystal structure and increases the strength of the TNT matrix—so reducing cracking. Examination of cast charges can reveal the characteristic crystal plate alignment, showing that, on cooling, the strain has been distributed evenly and released in the whole charge. The use of a plasticising additive can eliminate even this pattern. When HNS is combined with techniques giving improved wall adhesion, RDX/TNT compounds make possible very powerful high-explosives with the minimum of defects likely to cause premature detonation.