

Newsletter

Pakistan is home to the most frenetic education reforms in the world

EVERY three months, Shahbaz Sharif, the chief minister of Punjab, gathers education officials around a large rectangular table. The biggest of Pakistan's four provinces, larger in terms of population (110m) than all but 11 countries, Punjab is reforming its schools at a pace rarely seen anywhere in the world. In April 2016, as part of its latest scheme, private providers took over the running of 1,000 of the government's primary schools. Today the number is 4,300. By the end of this year, Mr Sharif has decreed, it will be 10,000. The quarterly "stocktakes" are his chance to hear what progress is being made towards this and other targets—and whether the radical overhaul is having any effect.

For officials it can be a tough ride. Leaders of struggling districts are called to Lahore for what Allah Bakhsh Malik, Punjab's education secretary, calls a "pep talk". Asked what that entails, he responds: "Four words: F-I-R-E. It is survival of the fittest." About 30% of district heads have been sacked for poor results in the past nine months, says Mr Malik. "We are working at Punjabi speed."

Pakistani education has long been atrocious. A government-run school on the outskirts of Karachi, in the province of Sindh, is perhaps the bleakest your correspondent has ever seen. A little more than a dozen children aged six or seven sit behind desks in a cobwebbed classroom. Not one is wearing a uniform; most have no schoolbags; some have no shoes. There is not a teacher in sight.

Most Pakistani children who start school drop out by the age of nine; just 3% of those starting public school graduate from 12th grade, the final year. Girls from poor families are least likely

to attend (see chart); Pakistan's gap between girls' and boys' enrolment is, after Afghanistan's, the widest in South Asia. Those in school learn little. Only about half of Pakistanis who complete five years of primary school are literate. In rural Pakistan just over two-fifths of third-grade students, typically aged 8 or 9, have enough grasp of arithmetic to subtract 25 from 54. Unsurprisingly, many parents have turned away from the system. There are roughly 68,000 private schools in Pakistan (about one-third of all schools), up from 49,000 in 2007. Private money currently pays for more of Pakistan's education than the government does.

It is in part the spread of private options that has spurred politicians like Mr Sharif into action. The outsourcing of schools to entrepreneurs and charities is on the rise across the country. It is too early to judge the results of this massive shake up, but it seems better than the lamentable status quo. If this wholesale reform makes real inroads into the problems of enrolment, quality and discrimination against girls that bedevil Pakistan, it may prove a template for other countries similarly afflicted.

There are many reasons for the old system's failure. From 2007-15 there were 867 attacks by Islamist terrorists on educational institutions, according to the Global Terrorism Database run by the University of Maryland. When it controlled the Swat river valley in the north of the country, the Pakistani Taliban closed hundreds of girls' schools. When the army retook the area it occupied dozens of them itself.

Poverty also holds children back. Faced with a choice between having a child help in the fields or learn nothing at school, many parents rationally pick the

former. The difference in enrolment between children of the richest and poorest fifth of households is greater in Pakistan than in all but two of the 96 developing countries recently analysed by the World Bank.

Yet poverty is not the decisive factor. Teaching is. Research by Jishnu Das of the World Bank and colleagues has found that the school a child in rural Pakistan attends is many times more important in explaining test scores than either the parents' income or their level of literacy. In a paper published in 2016, Mr Das and Natalie Bau of the University of Toronto studied the performance of teachers in Punjab between 2003 and 2007 who were hired on temporary contracts. It turned out that their pupils did no worse than those taught by regular ones, despite the temporary teachers often being comparatively inexperienced and paid 35% less.

Teachers' salaries account for at least 87% of the education budget in Pakistan's provinces. A lot of that money is completely wasted. Pakistan's political parties hand out teaching jobs as a way of recruiting election workers and rewarding allies. Some teachers pay for the job: 500,000 rupees (\$4,500) was once the going rate in Sindh. At the peak of the problem a few years ago, an estimated 40% of teachers in the province were "ghosts", pocketing a salary and not turning up.

"Pupils' learning outcomes are not politically important in Pakistan," says the leader of a large education organisation. Graft is not the only problem.



Politicians have treated schools with a mix of neglect and capriciousness. Private schools have been nationalised (1972) and denationalised (1979); Islam has been inserted and removed as the main part of the curriculum. The language of instruction has varied, too; Punjab changed from Urdu to English, only to revert to Urdu. Sindh, where teachers who are often Sindhi speakers may struggle to teach Urdu, announced in 2011 that Mandarin would be compulsory in secondary schools.

Getting schooled

It is against this background that organisations like The Citizens Foundation (TCF) have developed. The charity runs perhaps the largest network of independently run schools in the world, educating 204,000 pupils at not-for-profit schools. It is also Pakistan's largest single employer of women outside the public sector; in an effort to make girls feel safer in class, all of TCF's 12,000 teachers are female. At its Shirin Sultan Dossa branch near a slum on the outskirts of Karachi, one girl is more than holding her own. At break-time on the makeshift cricket pitch she is knocking boys' spin-bowling out of the playground.

In 2016 TCF opened its first "college" for 17- and 18-year-olds at this campus in an attempt to keep smart poor pupils in school longer. Every day it buses 400 college pupils in from around the city. It builds schools using a standard template, typically raising about \$250,000 for each of them from donors; it recruits and trains teachers; and it writes its own curriculums.

Since 2015 TCF has taken over the running of more than 250 government schools in Punjab, Sindh and Khyber Pakhtunkhwa. It gets a subsidy of around 715 rupees per month per child, which it tops up with donations. So far it has increased average enrolment at schools from 47 to 101 pupils, and test results have improved.

The outsourcing of state schools to TCF is just one part of the Sindh government's recent reforms. "Three years ago we hit rock bottom," says a senior bureaucrat, noting that 14,000 teaching jobs had been doled out in one year to supporters of the ruling Pakistan Peoples Party. Since then it has used a biometric attendance

register to cut 6,000 ghost teachers from the payrolls, and merged 4,000 sparsely attended schools into 1,350. Through the Sindh Education Foundation, an arms-length government body, it is funding "public-private partnerships" covering 2,414 schools and 653,265 pupils. As well as the outsourcing programme, schemes subsidise poor children to attend cheap private schools and pay entrepreneurs to set up new ones in underserved areas.

This policy was evaluated in a paper by Felipe Barrera-Osorio of Harvard University and colleagues published last August. The researchers found that in villages assigned to the scheme, enrolment increased by 30% and test scores improved. Parents raised their aspirations—they started wanting daughters to become teachers, rather than housewives. These results were achieved at a per-pupil cost comparable to that of government schools. "Pakistan's education challenge is not underspending. It is misspending," says Nadia Naviwala of the Wilson Centre, a think-tank.

While Sindh has pioneered many policies, Punjab has taken them furthest. The Punjab Education Foundation (PEF), another quasi-independent body, oversees some of the largest school-privatisation and school-voucher programmes in the world. It has a seat with the ministers and administrators at Mr Sharif's quarterly meetings. The Punjab government no longer opens new schools; all growth is via these privately operated schools. Schools overseen by PEF now teach more than 3m children (an additional 11m or so remain in ordinary government-run schools).

This use of the private sector is coupled with the command-and-control of Mr Sharif, who is backed by Britain's Department for International Development, which helps pay for support from McKinsey, a consultancy, and Sir Michael Barber, who ran British prime minister Tony Blair's "Delivery unit". The latest stocktake claimed an "unprecedented" 10% increase in primary-school enrolment since September 2016, an extra 68,000 teachers selected "on merit", and a steady increase in the share of correct answers on a biannual test of literacy

and numeracy.

Some are concerned about the stress on meeting targets in this "deliverology" model. For one thing, independent assessment of the system's claimed success is hard. Mr Das argues that there is no evidence from public sources that support Punjab's claims of improved enrolment since 2010. Nor is the fear provoked by Mr Sharif always conducive to frank self-appraisal: some officials may fudge the numbers. Ms Naviwala points out that two of the worst-performing districts in spring 2015 somehow became the highest performers a few months later. She suggests that similar data-driven reforms in Khyber Pakhtunkhwa may have a better chance of success, since they are less dependent on the whims of a single minister. For their part Punjab and its international backers insist that the data are accurate, and that the other publicly available data are out of date.

No one thinks that everything is fixed. Around the corner from that parlous primary school on the outskirts of Karachi is another, privately run school hand-picked for your correspondent's visit by civil servants. In maths classes pupils' workbooks have no entries for the past fortnight. What sums there are show no working; answers were simply copied. The head teacher seems to care most about his new audiovisual room, the screen in which is not for pupils, but for him: a bootleg Panopticon, with six CCTV feeds displayed on a wall-mounted screen. This is an effective way of dealing with ghosts. But as the head explains how great his teachers are, one of them strolls up to a boy in the front of her class and smacks him over the head.

Even if there is bluster aplenty and a long way to go, though, the fact that politicians are burnishing their reputations through public services, rather than patronage alone, is a step forward. And if there is a little Punjabi hype to go with the Punjabi speed, then that may be a price worth paying. For too long Pakistani children have suffered because politicians have treated schools as political tools. They deserve much better.

[Source: The Economist]



Making Better Contact Lenses

Material and manufacturing innovations are the secrets for more comfortable – and someday more interactive – vision correction



Around the world, more and more people are becoming nearsighted. Today's younger generations have a much higher incidence of myopia than their parents do, according to public health data, and the rate is expected to keep rising in the years ahead.

"In college-age people in South Korea, the rate is over 90%," says Susan Vitale, a research epidemiologist at the National Eye Institute of the National Institutes of Health. "They've got something you could almost call an epidemic on their hands."

Vitale and coauthors published an analysis that found for people aged 12 to 54 in the U.S., myopia appeared to increase from an average of 25% in the early 1970s to almost 42% in the early 2000s (Arch. Ophthalmol. 2009, DOI: 10.1001/archophthalmol.2009.303).

In the future, contacts could go beyond mere vision correction to treat conditions such as myopia in children. And with advances in electronic materials, lenses could start to monitor and treat health conditions by using the eye as a window into the body.

The first soft contact lenses were made of a polymer, called a hydrogel, based on the monomer hydroxyethyl methacrylate, or HEMA. Making water-hating silicone polymers compatible with water-loving hydrogels was not straightforward. And the combination brought new comfort challenges. Silicone increased the stiffness of the lenses. It also repelled water, causing the lens to dry out and interrupting the surface layer of tears that provides lubrication when a user blinks.

The silicone also attracted lipids from tears that could foul the lenses, says John Pruitt, head of vision care research at Alcon, a contact lens maker that is part of Novartis. "Our primary challenge was to maintain oxygen transfer but minimize or eliminate the downsides."

Overall, the global contact lens industry is worth an estimated \$7.2 billion per year and is growing by 5% annually. Sales in the U.S. totaled about \$2.5 billion last year, according to Jason J. Nichols, a professor of optometry at the University of Alabama, Birmingham, and editor of the industry journal Contact Lens Spectrum.

The big five manufacturers own about 80% of the market. The other 20% of patients turn to custom manufacturers for rigid lenses or soft contacts in unusual sizes or prescriptions.

Today's contact lenses do only one thing: bend light. They help an incorrectly shaped cornea—the eye's natural lens—focus light rays right on the surface of the retina. But future lenses could be designed to arrest the progress of vision problems or interact with the body in new ways using electronics.

But in younger patients, studies have shown, the contact lenses can slow the elongation of the eye. In children, the magnifying portion of the lens "gives the eye a growth control signal that the wearer isn't even aware of," Mutti says.

Enhancing contact lenses with electronics is another, more futuristic, way to add functionality. For example, such souped-up lenses could offer real-time focusing help

for people with more severe presbyopia, CooperVision's Diamanti says. Other possibilities include lenses that monitor sleep, glucose levels, or other biomarkers. They could dispense medications or even display images.

These efforts are benefiting from innovations in electronics, including miniaturization and transparent conducting materials. But the challenges are immense. In 2014, Novartis made a splash when it announced it would license so-called smart lens technology from Google.

A search of journal articles and patents by CAS, a division of the American Chemical Society, shows that scientists are testing materials such as organic light-emitting diodes, conducting polymers, and graphene for use in contact lenses. Companies including Google, IBM, LG Chem, Johnson & Johnson, and Samsung have disclosed potential plans for sensors, circuits, power supplies, liquid-crystal displays, and signaling capabilities.

"You can reasonably assume that any function your TV or smartphone has now could be implemented on a contact lens," says Drew Evans, a professor in the thin films coatings group at the University of South Australia. His team is looking for conductive materials that are compatible with contact lenses and can be incorporated into lens manufacturing.

[Source: Chemical & Engineering News]



December 1:

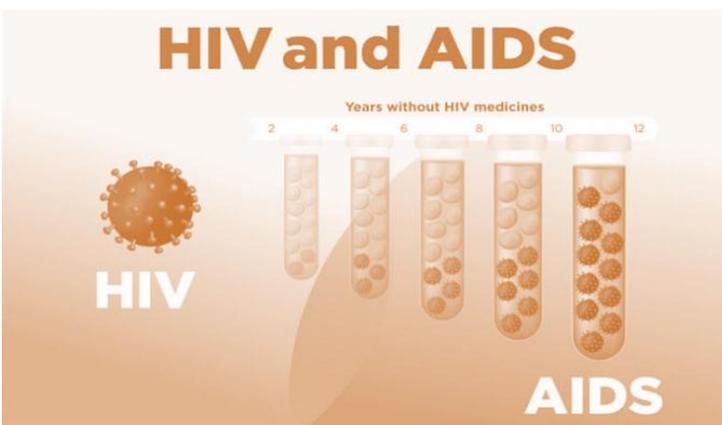
World HIV/AIDS Day

What is HIV?

HIV is a virus that attacks the immune system, which is our body's natural defence against illness. The virus destroys a type of white blood cell in the immune system called a T-helper cell, and makes copies of itself inside these cells. T-helper cells are also referred to as CD4 cells.

What is AIDS?

AIDS is not a virus but a set of symptoms (or syndrome) caused by the HIV virus. A person is said to have AIDS when their immune system is too weak to fight off infection, and they develop certain defining symptoms and illnesses. This is the last stage of HIV, when the infection is very advanced, and if left untreated will lead to death.



Spread

HIV is spread through contact with certain body fluids from a person with HIV. These body fluids include:

- Blood
- Semen
- Pre-seminal fluid
- Vaginal fluids
- Rectal fluids
- Breast milk

You cannot get HIV by shaking hands or hugging a person who has HIV. You also cannot get HIV from contact with objects such as dishes, toilet seats, or doorknobs used by a person with HIV. HIV does not spread through the air or through mosquito, tick, or other insect bites.

Symptoms

Within 2 to 4 weeks after a person becomes infected with HIV, they may have flu-like symptoms, such as fever, chills, or rash. The symptoms may last for a few weeks after they become infected. After this earliest stage, HIV continues to multiply but at very low levels.

Treatment

Antiretroviral therapy (ART) is the use of HIV medicines to treat HIV infection. People on ART take a combination of HIV medicines every day. (HIV medicines are often called antiretrovirals or ARVs.)

Cancer Research

A University of Hawai'i Cancer Center researcher has identified how some cancer cells are made to move during metastasis. The research provides a better understanding of how cancer spreads and may create new opportunities for cancer drug development.

Metastasis causes the deaths of 90 percent of cancer patients. The spread of cancer by metastasis is driven by a set of mutant proteins called oncogenes which cause cancer cells to multiply uncontrollably and promotes their ability to move. How oncogene activity specifically directs the increased movement and metastasis is highly complex and remains largely unknown.

Joe W. Ramos, PhD, deputy director of the UH Cancer Center and collaborators focused on investigating how these oncogenes and related signals lead to dysregulation of normal processes within the cell and activate highly mobile and invasive cancer cell behavior.

The findings, published in Proceedings of the National Academy of Sciences (PNAS), define a mechanism in which the oncogenes turn on a protein called RSK2 that is required for cancer cells to move. Ramos and colleagues found that the RSK2 protein forms a signaling hub that includes proteins called LARG and RhoA. They show that turning on this signaling hub activates the movement of the cancer cells. These results significantly advance understanding of how cancer cells are made to move during metastasis and may provide more precise targets for drugs to stop cancer metastasis in patients where there are oncogenic mutations.

"These new data are very exciting. Blocking cancer invasion and metastasis remains a central challenge in treating patients. We anticipate that this research may lead to new therapeutic opportunities for brain tumors, melanoma, and breast cancer among others. We are currently focused on these opportunities and developing new compounds to target this signaling hub," said Ramos.

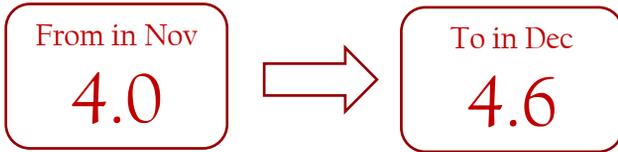
The work was done in collaboration with Michelle L. Matter, PhD, UH Cancer Center researcher in the Cancer Biology Program.



Market Update

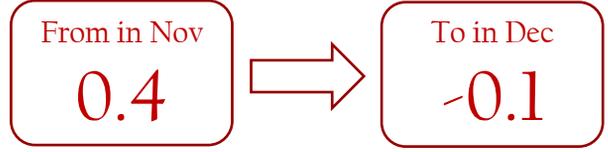
Monthly Inflation (Consumer Price Index)

% Increase in CPI vs. Same Month Last Year



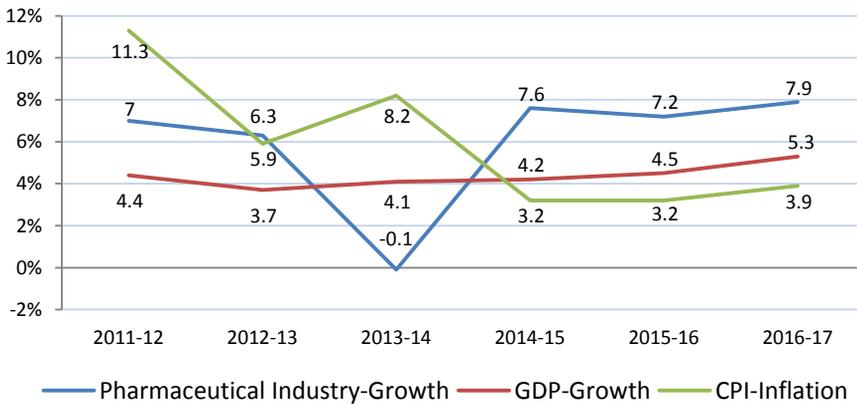
Major increase was due to house rent and education increase of 6.49% and 12.4% respectively, as compared to the previous year. It has a contribution of 25.75% in the Consumer Price Index (CPI). Moreover, price of onions increased by 130.36%.

% Increase in CPI vs. Previous Month



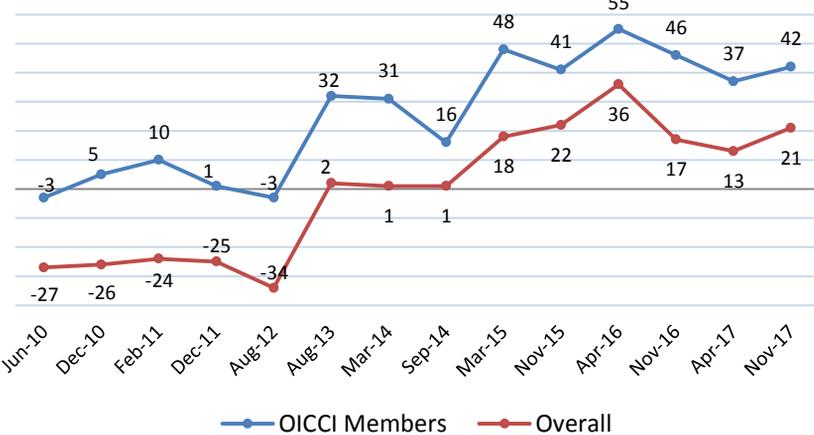
Major increase was due to increase in education (3.66%), house rent (1.34%) and prices of food items such as Tomatoes (30.16%), Onions (21.91%) and Chicken(23.67%) as compared to the previous month.

Pharmaceutical Industry growth trend



Pharmaceutical Industry has been growing at considerable pace for last three year. At the present rate the market size for pharmaceuticals will double in the next 10 years in Pakistan. This rate can be increased by government incentives, correct policy direction, robust regulatory environment and Intellectual Property Rights protection.

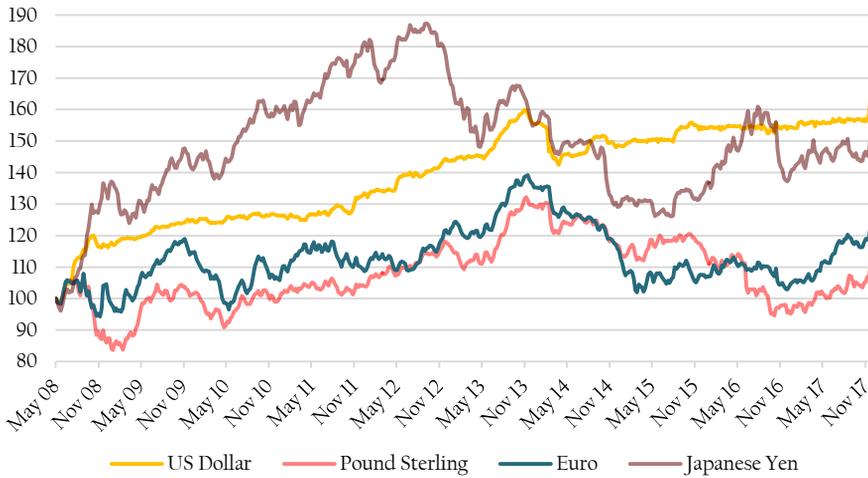
OICCI Business Confidence Score



The sentiments of the leading foreign investors, represented by OICCI members, who were randomly included in the current survey, lagged behind the overall increase and grew by only 5%, as compared to Wave 14 survey. However with a BCS of 42%, they continue to maintain significantly more positive sentiments than the remaining respondents, which is a positive sign for future FDI inflow.



Foreign Currencies

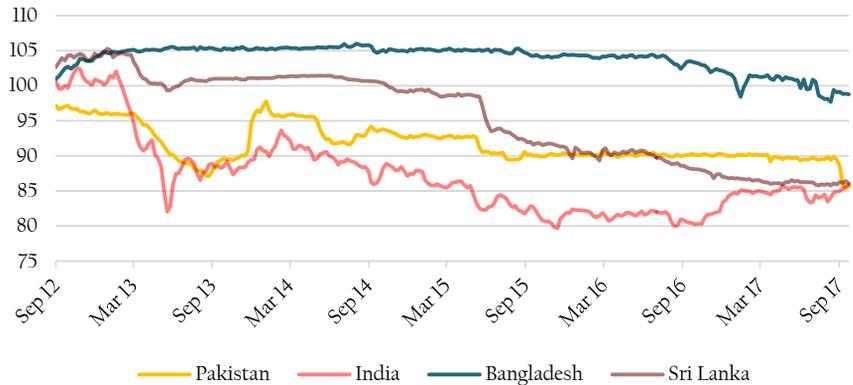


PKR vs. Major Foreign Currencies

PKR has depreciated against all four major currencies in December 2017 : USD (4.9%), GBP (6.3%), EUR (5.6%) and JPY (3.7%).

USD vs. Major South Asian Currencies

USD appreciated against Pakistan Rupee (4.9%) and Bangladesh Taka (1.3%). It depreciated against Indian Rupee (2.6%). Whereas, Sri Lankan Rupee remained unchanged.



Questions? We'd love to hear from you

Address: Chamber of Commerce Building, Talpur Road, Karachi – 74000, Pakistan

Phone: +92-21-32477509

Fax: +92-21-32477503

Email: ayesha.t@oicci.org

anwar.khan@oicci.org

Website: www.pharmabureau.org

Facebook: www.facebook.com/ThePharmaBureau/

The Pharma Bureau is a representative body of multinational pharmaceuticals in Pakistan. Part of the Overseas Investors' Chamber of Commerce & Industry, the Pharma Bureau was founded in October, 1988, when a small group of like-minded research based multinational pharmaceutical companies felt the need to have their own separate forum to articulate and resolve the problems and issues confronting overseas investors in the pharmaceutical industry in Pakistan.

Pharma Bureau Mission: Work closely with the relevant Government authorities to tackle and help resolve health industry related issues. Assist member firms in Product Registration Procedures. Protection of Intellectual Property Rights of members by respecting international patent laws. Bring about positive changes in the Health Administration set-ups by encouraging the Government to bring about improvements and changes in the structure and workings of health administrations

Our members: Provide quality drugs to the population at affordable prices without compromising on stringent industry standards. Introduce innovative drugs and medicines in Pakistan to enhance patient welfare and quality of life. Provide refresher courses to doctors on latest health topics / trends and educate them on new medication. Introduce, uphold and promote Good Manufacturing Practices (GMP) and Good Distribution Practices (GDP). Are conscientious and ethical members of society, providing social care and support during national disasters.

