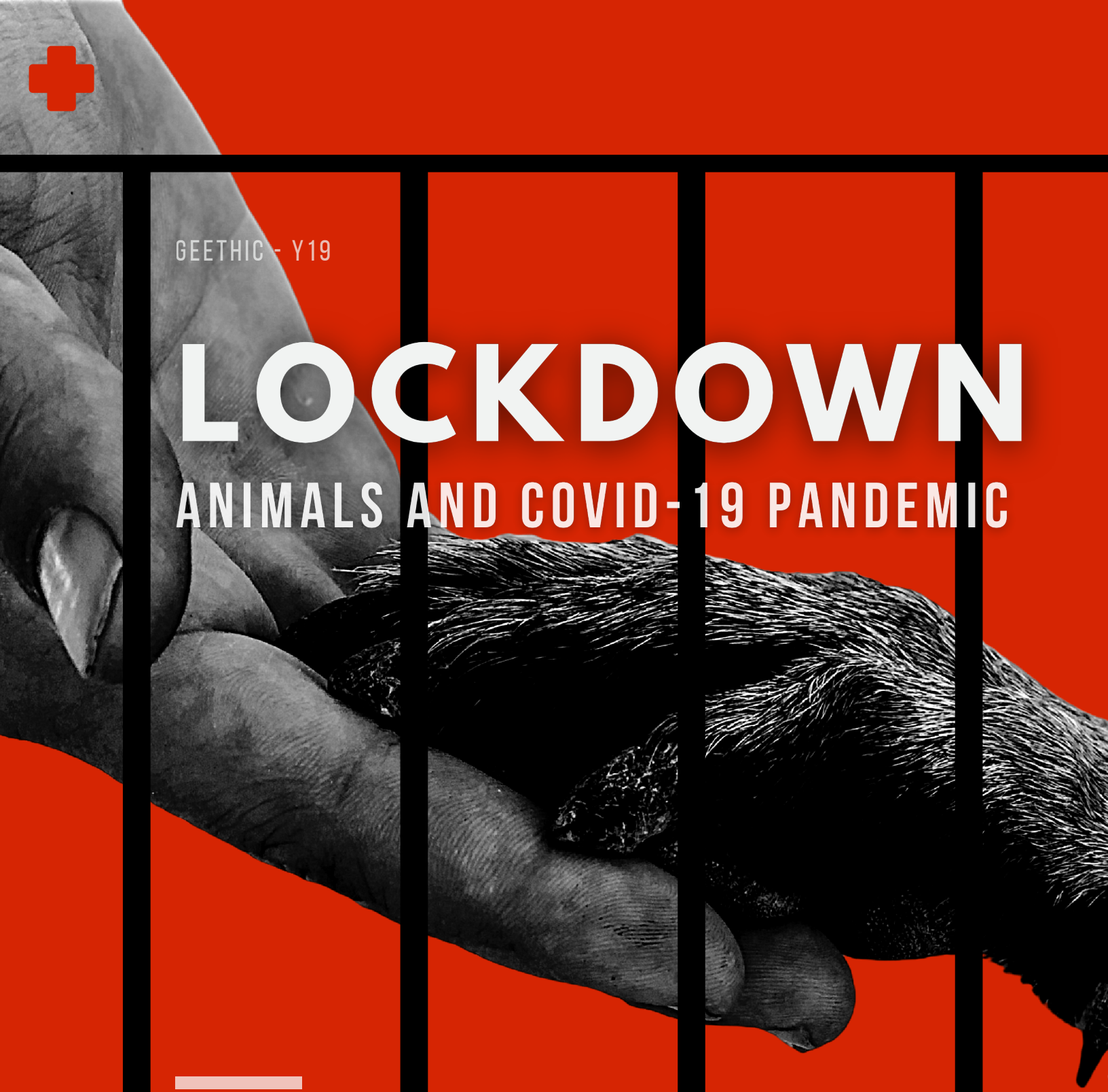
GEETHIC - Y19

LOCKDOWN

ANIMALS AND COVID-19 PANDEMIC



GROUP RESEARCH ON CHALLENGING INTERACTIONS BETWEEN HUMANS AND ANIMALS

MAY 25, 2021

LOCKDOWN

ANIMALS AND COVID-19 PANDEMIC

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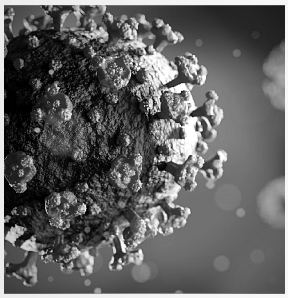

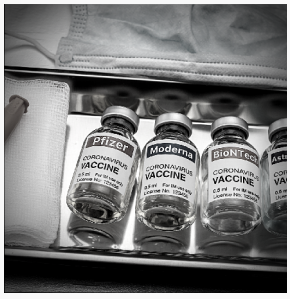

ABOUT

This issue is about the critical analysis of the pressing ethical and/or societal issues found in the interaction of humans and animals in the time of the pandemic. Specifically, how animals affected by COVID-19 are treated, how animals are used as frontliners, and how animals are utilized as research subjects for the formulation of vaccines. Done for the completion of requirements for the course GEETHIC - ETHICS. We went for the minimalist design to make the readers focus on the contents and the message it hopes to deliver. Hope you enjoy reading this issue as much as we did making it while also learning meaningful insights.

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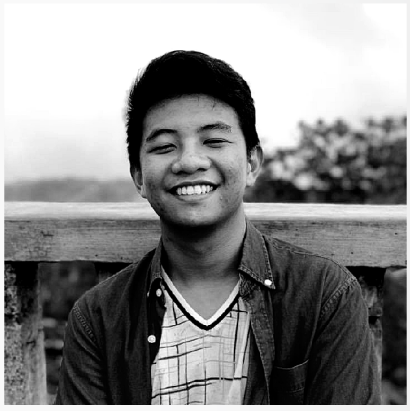

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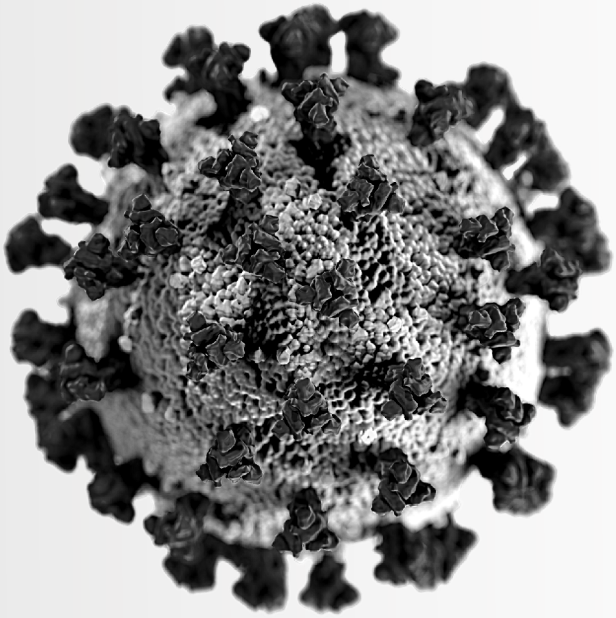
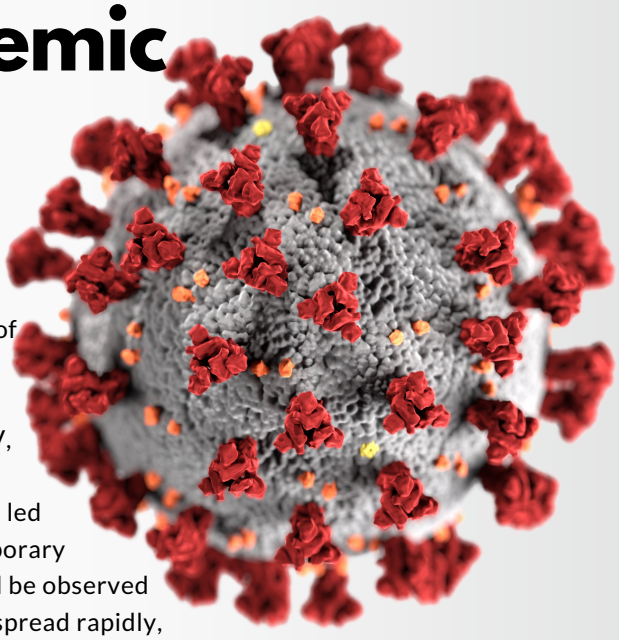
INTRODUCTION AND OVERVIEW



LOCKDOWN: Animals and the COVID-19 Pandemic

by Reginald Geoffrey L. Bayeta IV



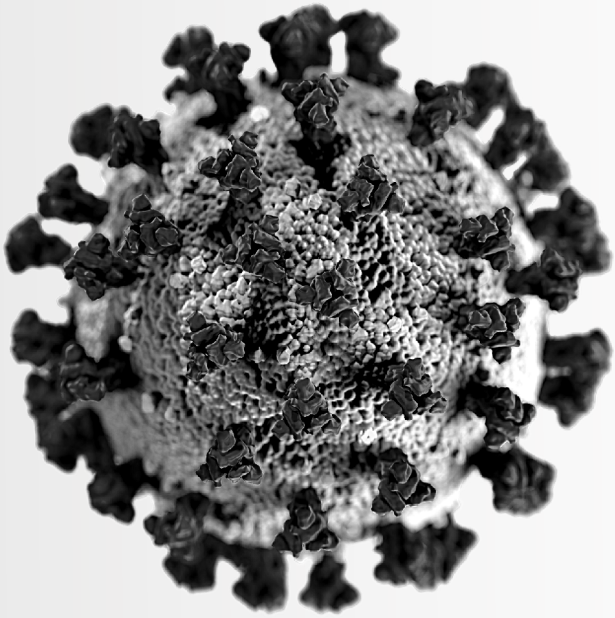
Chinese health authorities declared an outbreak of virus-like pneumonia during New Year's Eve of 2019. Several people in the central part of Wuhan, China had developed the disease, wherein they showed symptoms of having a dry cough, fatigue, and fever, before developing pneumonia, which ultimately leads to the demise of others. The World Health Organization (WHO) classified the disease as a severe acute respiratory syndrome-related coronavirus (SARS-CoV-2), which belongs to the same family as 229E, MERS-CoV, and SARS-CoV. It is commonly referred to as COVID-19, which is an abbreviation for Coronavirus disease 2019. The COVID-19 situation led to countries canceling major operations in societal institutions, temporary closing of borders, and implementing strict lockdowns which can still be observed more than a year later. Despite such intensive efforts, the virus had spread rapidly, and millions have been infected among over 180 countries. Many experts say that reactionary measures may not be effective in dealing with a pandemic. In the process of understanding the spread of such disease, the first most important checkpoint to reach is finding out its origin. Looking at the history of infectious diseases, the consistent trend that can be observed showed that most viruses that sparked an outbreak originated from animals, wherein later experts have concluded that a food market in Wuhan is the most likely source. From the domestication of camels which is thought to have resulted in the common cold virus and MERS, HIV/AIDS from chimpanzees, flu variants from pigs and birds, Ebola virus from bats, and now COVID19 that is also believed originated from bats transferred to pangolins and then to us humans, all viruses have animals either domestic or wild to be their natural reservoir.

In the study of epidemiology, animals, be it wild or domesticated, are classified as natural reservoirs, which generally means they host pathogens inside them, but normally not causing any symptoms for them to be sick. Such viruses can easily be transferred from an organism to organism but it is highly unusual for humans to have contact with them, especially the deadly ones, as carriers of such would have little to no reason to have an interaction with the general population. But with the current pandemic, and the outbreak before that occurred, it should be apparent that we are the ones who create such scenarios by diminishing the distance between these wild animals and the populace by selling them in the wildlife trade, particularly the wet market. This is where COVID-19 comes in, its point of origin is believed to be found in a wet market in Wuhan, China wherein different kinds of wild animals are sold, which is similar to that of the 2003 SAR outbreak which also believed to be originated from the said country that accounted for 8096 confirmed cases and 774 deaths. By this time, reading the previously stated facts can lead to a rise of an eyebrow while asking whether or not this is a coincidence or not - and you are right, it's not.

The history of China's market for wildlife ultimately comes from its forced solution to the famine they have experienced a few decades ago. China's communist regime let the people farm for themselves – which in turn caused the hogging of industries in poultry and pork by large entities and minorities being neglected. This led to a rise of the said minorities of wild animal farmers, which surprisingly became successful, gaining the support of the government in the process. Although it provided a way of living to lots of people moving forward, the issues that lie within this industry cannot be denied – this concerns environmental, ethical, and most importantly health issues. This became evident with the 2003 SAR outbreak, and the current COVID-19 pandemic. To address these concerns, the Chinese government often laid out band-aid legislation to reduce the friction coming from international pressure but only to continue supporting the industry after some amount of time. Although, with the current pandemic, there are reports that they are starting to amend such laws as their citizens also stressed their concerns but this should not stop from this. The act of farming wildlife has served its emergency purpose with the past famine, but as the world, as it is right now, the total ban of such industry should be pushed through legislation as this is the likely solution to let future outbreaks not happen. As the saying goes, prevention is better than cure.

The effects of COVID-19 are evident in the lives of everyone and widely affected the way society operates. But it should be noted that the pandemic does not just affect people, it is crucial to acknowledge that the animals themselves are the main victims here, the current outbreak is just the byproduct of our own doings. By this time, we are continuously violating the de facto laws of nature, and it is just biting us back right now. This paper aims to discuss the ethical and societal issues found in the interaction of humans and animals in times of pandemic, specifically on how they are treated, how they are used as frontliners, and how animals are utilized as research subjects for the formulation of vaccines.

ANIMALS & DISEASE CONTAINMENT



THE DEADLY FATE OF FARMED MINKS IN COVID-19 PANDEMIC

by Teofilo M. Contreras Jr

In previous pandemic outbreaks, millions of chickens, pigs, and cows are killed to contain and control the widespread disease. Unfortunately, it is now the mink's turn.

Different countries have reported coronavirus outbreaks among the species of mink. In response, some of these countries have ordered a mass slaughter of the pitiful creature. In Spain, nearly 100,000 minks are culled to prevent further transmission. In some fur farms in Utah, the state official culled thousands of minks. The Government of Denmark went so far as to killing 17 million minks last year in response to outbreaks of coronavirus in fur farms. The Danish Government spared no minks at all, killing both the infected and healthy alike. The tragic events that happened to the minks are truly disheartening as they also become the victims of the pandemic. However, the mass culling of minks is justifiable for the sake of preventing the transmission of COVID 19 and protecting the vaccine as there is strong evidence that fur farms can be a breeding ground for possible mutations of the virus, and it can migrate from minks back to humans.

Some studies have shown that the coronavirus is contagious among certain animals, such as cats and dogs. Despite these, the likelihood of owners contracting the virus from their dogs is substantially lower than the likelihood of contracting it from other members of their household. However, there are reported cases of animal-to-human transmission in the Netherlands and Denmark. These infections occurred in fur farms where minks are infected. The employees working at the farm got infected from the minks carrying the virus and possibly spreading the virus through their local communities. Currently, minks are the only known animals that are capable of transmitting the virus to humans. It raises a concern to the scientific community because the fur farms could contribute to amplifying and spreading a virus affecting humans. As the virus moves between human and animal populations, the virus can be deadlier over time. Since then, different countries have cleared all the fur farms where minks were kept.

From the genetic and experimental data, there is no found evidence that the mutations of the virus originated from the minks make it more transmissible

among human beings nor indicate that the virus would be more deadly. Despite these findings, the scientist is still determined that mass culling is necessary because the genetic mutations of the novel coronavirus occur slowly but regularly. With enough modification in its genes, a different variant of the virus would be a case of extra concern. The possible new variant may further fuel the pandemic, posing threat to the effectiveness of current and future vaccines.

The culling of millions of minks may sound cruel, animal advocacy groups and the scientific community have supported it. Despite these, the Government should have handled the culling better. These “farm” animals deserve a decent burial unlike leaving them in shallow graves. Millions of dead minks are buried in shallow pits in Denmark and the escaping gas from decomposition causes the dead bodies of minks to resurface. The experts are still looking for possible underground water contamination. Contradictorily to the means, the killing of minks resulted in other health hazards to nearby communities leading to more outrage and concerns.

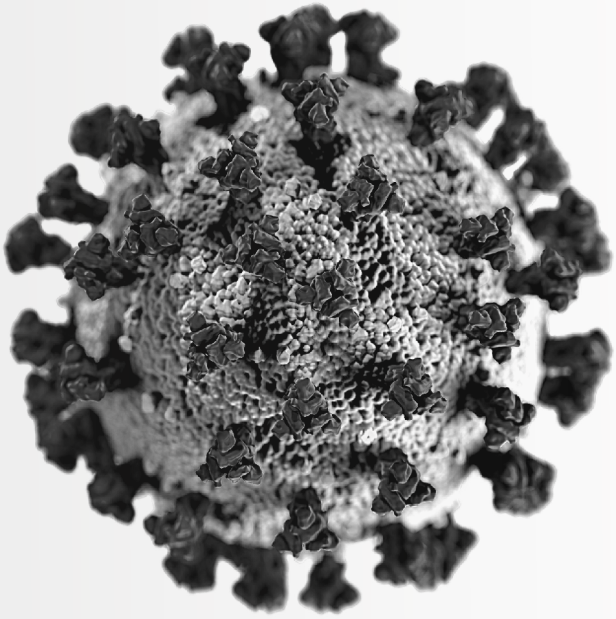
The decision of mass culling of minks is needed to protect the greater number of people and wildlife. The evidence shows that minks are capable of spreading the disease to other minks and humans. It can worsen the pandemic because ferrets and minks are known to be hotbed for unpredictable mutation forces. If the mutation takes place, it will render the vaccines useless, and efforts of people to control and contaminate the coronavirus are in vain. However, the clueless creature deserves more than a shallow burial pit for their inevitable sacrifices for humanity. In the harsh reality, the minks would be violently killed at some point. This tragic event shed a light on the negative impacts of intensive animal farming, a recipe for a disaster in pandemics.

CORONAVIRUS, A PANDEMIC FOR THE ANIMALS TOO

by Kyle Jomar C. Megino

It is no secret that the Coronavirus pandemic caused a lot of changes in our everyday lives. What is not that obvious is that these changes affected other living beings on our planet. Animals coexist with us humans and the pandemic has caused them woes during these times as well. Sadly, some of their woes are caused by human actions rather than the virus itself. Out of fear of transmission, pets are being abandoned by their owners. Some are also left alone at home when temporarily evacuating in fear of the virus. It is confirmed that domestic animals such as cats and dogs can be infected by the virus. On the other hand, the fact that animals are one of the main causes of the spread of COVID-19 is not yet confirmed and that available information shows that the risk of animal-to-human transmission of COVID-19 is extremely low. In the initial outbreak in Wuhan, citizens were forced to leave their pets behind during the evacuation ordered by the authorities. Thousands of the animals that were left behind faced starvation and death when 6 weeks after the evacuation, many pet owners have not returned to their homes. Paranoia in animals started when the first known case of COVID-19 transmission from human to animal happened in Hong Kong. After its owner contracted the virus, a 17-year-old male Pomeranian gave a positive result after testing. Due to this, animal abuse related to diseases increased. In some provinces in China, authorities announced that pets and animals found in public places will be killed. Due to the lack of knowledge regarding the virus, a lot of animals were harmed. The sad fact is that animal cruelty and abuse would have been avoidable, but the panic caused by the pandemic made people do rash and hasty decisions. While animals depend on humans, it goes both ways as well. Countless studies have shown that pet companions help improve mental health. A silver lining during the pandemic is that dog adoption has increased. This pandemic and quarantine showed how important domestic animals are for humans. With such a long quarantine and isolation, mental health will be at its lowest. With that in mind, an extra friend or buddy around to be with will surely help overcome the loneliness.

ANIMALS AND FRONTLINERS



COMMUNITY CANINES

Brave frontliners

by Joseph V. Portugal

Frontliners play a vital role in providing the life-saving support and protection that the community needs during these difficult times brought by the COVID-19 pandemic, despite the life-threatening risks they expose themselves to, every day. As such, every effort from them bears great importance; they are what we can consider today our "real-life heroes". It is not only humans that are involved in the efforts to help out local communities battle the effects of the COVID-19 pandemic, animals are with us in this battle as well. Different dogs from all over the Philippines, usually alongside barangay officials, have been wandering around the streets helping their local communities.

A dog named "Wacky" from Barangay 132, Pasay City. He used to be a stray dog, but now he is said to be a Hardworking frontliner and dedicated volunteer. He helps out in patrolling and ensuring the safety and security of the barangay, but when he is not on patrol duty, he is usually committing to stand-by duties in the barangay hall. He also accompanies those handing out relief goods. Even though he's a dog, he still wears the required facemask and bears an ID that proudly declares him.

Another adopted stray dog from Barangay 496, Sampaloc, Manila has also been doing its part in helping out their local community. Barangay chairman Edmond Dela Paz and his fur friend named "Ligaw" have been inseparable pairs. This is made evident by the fact that Ligaw accompanies the barangay chairman, and sometimes other barangay officials, whenever they do their donation drives, and Ligaw accompanies them on their own accord - voluntarily distributing rice, canned goods, and other relief goods to the constituents of that barangay. As a frontliner themself, Ligaw even has their quarantine pass.

Another dog-frontliner named Chi-Chi is a dog that was rescued by a barangay tanod of Barangay 379 Zone 38, she then proceeded to visit the barangay hall regularly, and before they knew it, she had made it her home ever since. She started to regularly join the barangay tanods as they do their regular patrols around the barangay. She is said to always be there, tirelessly accompanying and always being eager to join them in their barangay patrols; while also being very reliable when it comes to alerting suspicious individuals. At the same time, the barangay has been caring for Chi-chi as well. She now bears her certified "barangay frontliner" ID card and is officially considered the first dog frontliner to be recognized by Manila's local government unit.

Another dog braving the frontlines is a dog named Wynn, and she does not only help people, but she also helps those present in the hospital setting. Wynn is a service dog and is owned by one of the doctors of that hospital, as such she stays at the social workers' inner office while her owner does her frontlining duties. Being there, the workers in that hospital can come and visit her during their breaks, and de-stress, comforting them after a long day's work of saving lives.

Finally, though not everyone's dogs are taking on the responsibility of being a frontliner in their communities, our pets at home are doing their part to keep us comforted and to help us de-stress in these trying times.

CANINES IN THE FRONT LINE

by Kyle Jomar C. Megino

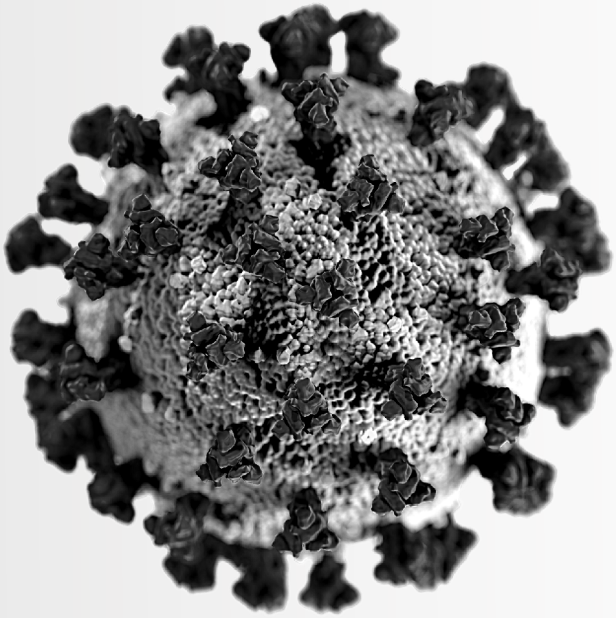
A dog's sense of smell is over 10,000 to 100,000 times better than the sense of smell of a human. Due to their superior sense of smell, dogs are trained to track substances for security. The things that trained sniffer dogs range from a person or animal to illegal drugs, guns, explosives, blood, currency, and even diseases. Dogs can detect warning signs of a disease before a person get sick, and beyond that, dogs can detect what kind of disease a person is experiencing. With the COVID-19 pandemic being the most serious concern in the whole world right now, authorities are finding alternative ways to track the virus since swab tests can be expensive en masse and do not immediately give out a result. Sniffer dogs are generating interest as an alternative way of COVID-19 detection. While using sniffer dogs can be a cheap alternative for testing, it is still not a foolproof solution. Also, it generates an ethical concern regarding animal rights and safety.

As mentioned before, dogs can be an effective way to detect COVID-19. In research entitled "Sniffer dogs as a screening/diagnostic tool for COVID-19: a proof of concept study", it was concluded that trained sniffer dogs can detect COVID-19 through odor. Though if they are to be used as a detection tool for Coronavirus, it means that they will be exposed to the virus itself. According to the Centers for Disease Control and Prevention, animals can show signs of illness and can contract COVID-19 from contact

with humans infected by the virus. The first known case of human to the animal transmission of Coronavirus was from a human to a dog. If trained dogs were to be frontliners against Coronavirus, they will be exposed to the virus themselves. As previously mentioned, sniffer dogs are not a foolproof solution. While the study about sniffer dogs and COVID-19 produced favorable results, there is still a small number of false positives during the test. Though then again, considering the costs that sniffer dogs can save, it will help the authorities.

Given the advantages and disadvantages of using sniffer dogs as frontliners, there are strong arguments as to whether to use them or not. Once further research regarding sniffer dogs was made, authorities may lobby for their use. On the other hand, ethical organizations such as PETA might discourage their use, considering the risks the dogs might face. Personally, if they were to be used as frontliners, there should be a middle ground. Given that the pandemic has caused a lot of damage, such new methods should be used. Though to protect dogs as frontliners, their safety should be a priority as well. Risks should be minimized by doing measures such as not using old or weaker dogs for COVID-19 detection and ensuring that frontliner dogs have protective gear to minimize transmission. In the end, the advantages of having sniffer dogs in COVID-19 detection are too great to pass up, but if it were to be done, it should be done so while minimizing the risks that the dogs themselves will face.

ANIMALS AND VACCINATION



THE BIG COMPANIES AND THE BIGGER HEROES

by Joseeph V. Portugal

In this current pandemic where society is in a race against time in finding a cure to end this pandemic once and for all, the urgency for developing a vaccine is needed to be taken with the utmost consideration, but at the same time, to develop it without cutting any corners. It has been reported that companies like Pfizer and Moderna have been approved to simultaneously conduct pre-clinical (laboratory) tests and the phase 1 trials on humans as well. This is important to keep in mind because this means that these companies did not skip testing their vaccines on animals, as the pre-clinical phase is done exclusively in a laboratory setting, and testing animals is the usual method. The FDA requires that vaccines are supposed to undergo extensive preclinical tests before any human tests are to be conducted. Once the vaccine is determined safe on animals, and further theoretical studies prove that it is safe to be used on humans, the actual clinical trial to selected volunteers is to take place.

Pfizer and BioNTech have stated that they have indeed tested on animals, specifically on mice and non-human primates, more specifically the rhesus macaque. Moderna also stated that they have also tested on mice and non-human primates as well. Oxford University, with the vaccine that they created with AstraZeneca, have stated that they have undergone animal testing as well, in the same vein as Pfizer and BioNTech, the vaccine created by AstraZeneca was also tested on the rhesus macaque; For Johnson & Johnson, they have stated that they have tested on non-human primates (not specified) for their preclinical study; they have also tested further on Syrian golden hamsters, as they are said to be more susceptible to the clinical disease than that of the primates (as the primates are reported to not get the severe disease).

One testing methodology would be that of Pfizer and BioNTech, they essentially have a split of rhesus macaque groups of those who received the effective vaccine, and those that received saline injections, and are intentionally infected and challenged for 55 days. The reason for selecting the rhesus macaque in the first place is that they are the closest relative to humans outside of the great apes, and thus are said to be an ideal model that can somewhat closely replicate that of the humans.

Fortunately, all of the animal testing conducted by these companies have shown very promising results, at least from an effectivity standpoint. The non-human primates that were tested with the Pfizer and BioNTech vaccine were able to gain strong Immunization/antiviral effects against an infectious challenge virus, which essentially protected them against infection. This is the same case for Moderna, where their vaccine was said to have a “robust immune response and protection against SARS-CoV-2 infection”. For Johnson & Johnson, their results show that for those that did have the vaccine, that they had immunity which was said to “prevent severe clinical disease”, “lost less weight and had less virus in their lungs and other organs'', and that there were absolutely no mortalities for the vaccinated animals, even after being exposed to a high dose of SARS-CoV-2 virus.

These testings essentially reinforce the promise and validity of developing safe and effective vaccines with the potential to prevent millions upon millions of COVID-19 cases, and ultimately for society to overcome the current pandemic. It is really good to hear that these companies are somewhat being transparent with how they developed their vaccine. Still, the thousands of animals that were a large part of the rigorous process of vaccine development are also to be greatly honored here, and their contribution in finally ending this pandemic is nothing short of invaluable.

THE CRIES OF ANIMAL FOR VACCINE

by Teofilo M. Contreras Jr

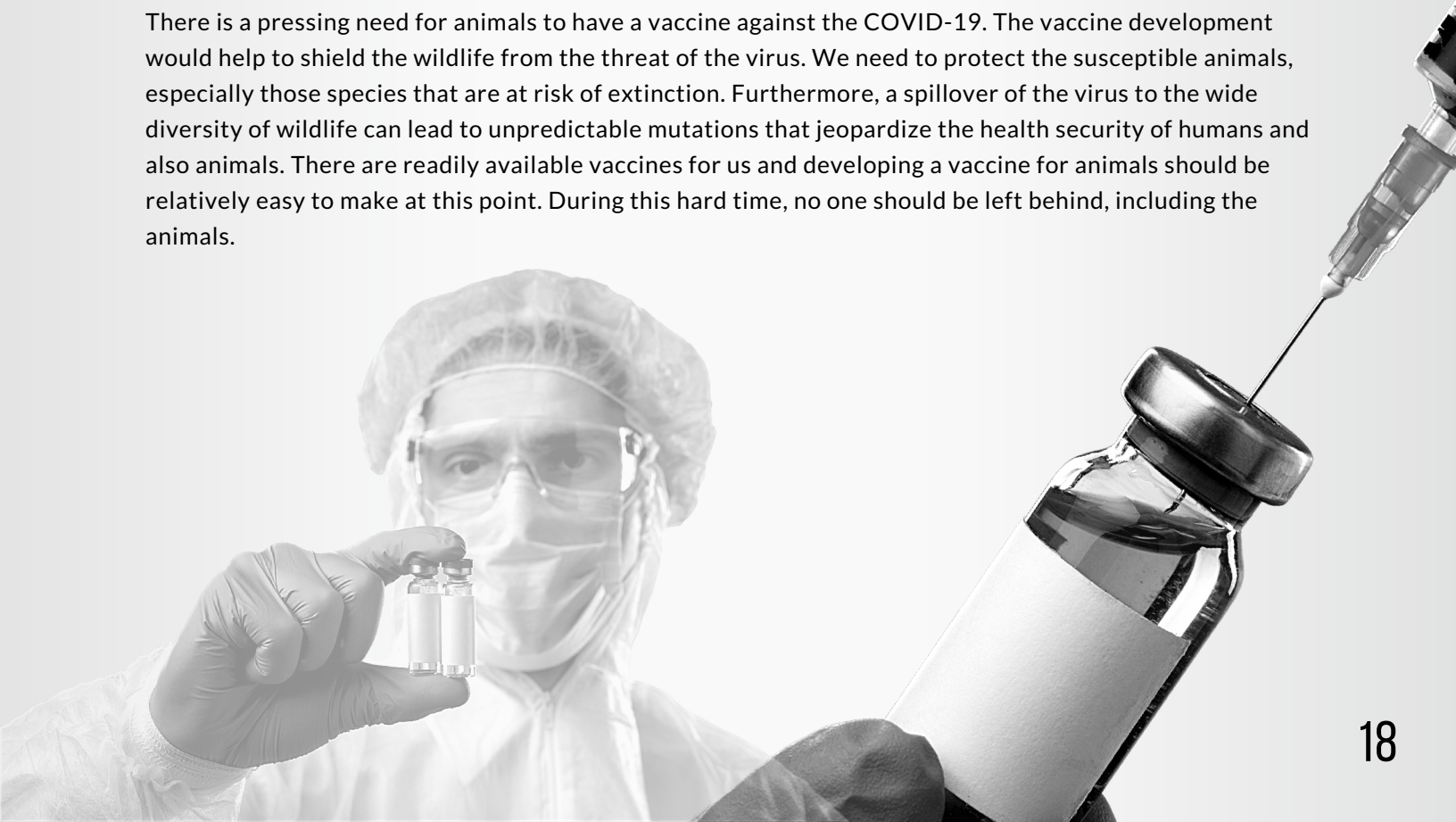
The COVID-19 pandemic has spread with alarming speed, infecting millions and led to the dramatic loss of human life. While the effects on human health and global economies are catastrophic, we must not forget about the animals too. Since the beginning of the COVID-19 pandemic, scientists and environmentalists have been raising their concerns about the potential impacts of the virus on pets, livestock, and wildlife. The effects of coronavirus in animals have been witnessed in some parts of the globe. Millions of minks are killed in Denmark in response to virus outbreaks among fur farms. Moreover, tigers and other animals in zoos and sanctuary are starting to become infected by the coronavirus. Not only humans but animals also need a vaccine against COVID-19 to protect the wildlife from outbreaks and avoid the vulnerable population of species pushed to the brink of extinction. Furthermore, to prevent mutation that can potentially lead to a deadlier and more transmissible virus.

Experts believe the coronavirus originated from wildlife and was transmitted to humans followed by a global spread. Since then, there have been reports of human-to-animal transmission cases involving companions (pet), farm animals, animals kept at the zoo, and wildlife. There is limited data on virus infection among free-living wildlife. However, it is highly possible that more cases of viral infection among wildlife will occur since many coronaviruses have a wide host range. With this clear possibility, this could head to the establishment of a reservoir of infection endangering not also the wild animals but also us.

Respiratory virus originating from humans is the leading cause of death in chimpanzees at National Parks in Tanzania. Now, as the COVID-19 cases keep increasing, the threat for endangered great apes is coming closer. If the virus finds its way through the ape community and other vulnerable animals, controlling the disease would be far from impossible since wild animals cannot comprehend the concept of social distancing. Their population would be wiped out in no time. To prevent this from coming into reality, animals that are susceptible to the coronavirus must be vaccinated.

When a virus jumps to a new species, it sometimes mutates, adapting to its new host to make its replication and transmission more effective in a new animal. When the virus comes back again to the human population, the events could be unpredictable. In the case of Denmark, public health authorities have detected mink-associated coronavirus variants in local farmers. This raises some concerns in the scientific community which lead to the clearing of fur farms and the culling of millions of minks.

There is a pressing need for animals to have a vaccine against the COVID-19. The vaccine development would help to shield the wildlife from the threat of the virus. We need to protect the susceptible animals, especially those species that are at risk of extinction. Furthermore, a spillover of the virus to the wide diversity of wildlife can lead to unpredictable mutations that jeopardize the health security of humans and also animals. There are readily available vaccines for us and developing a vaccine for animals should be relatively easy to make at this point. During this hard time, no one should be left behind, including the animals.



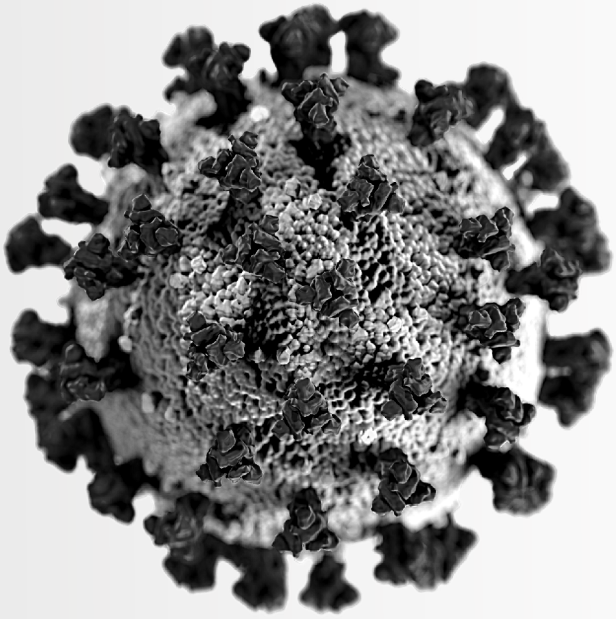
SUPERBUGS: WHEN ANTIBIOTIC BECOMES OBSOLETE

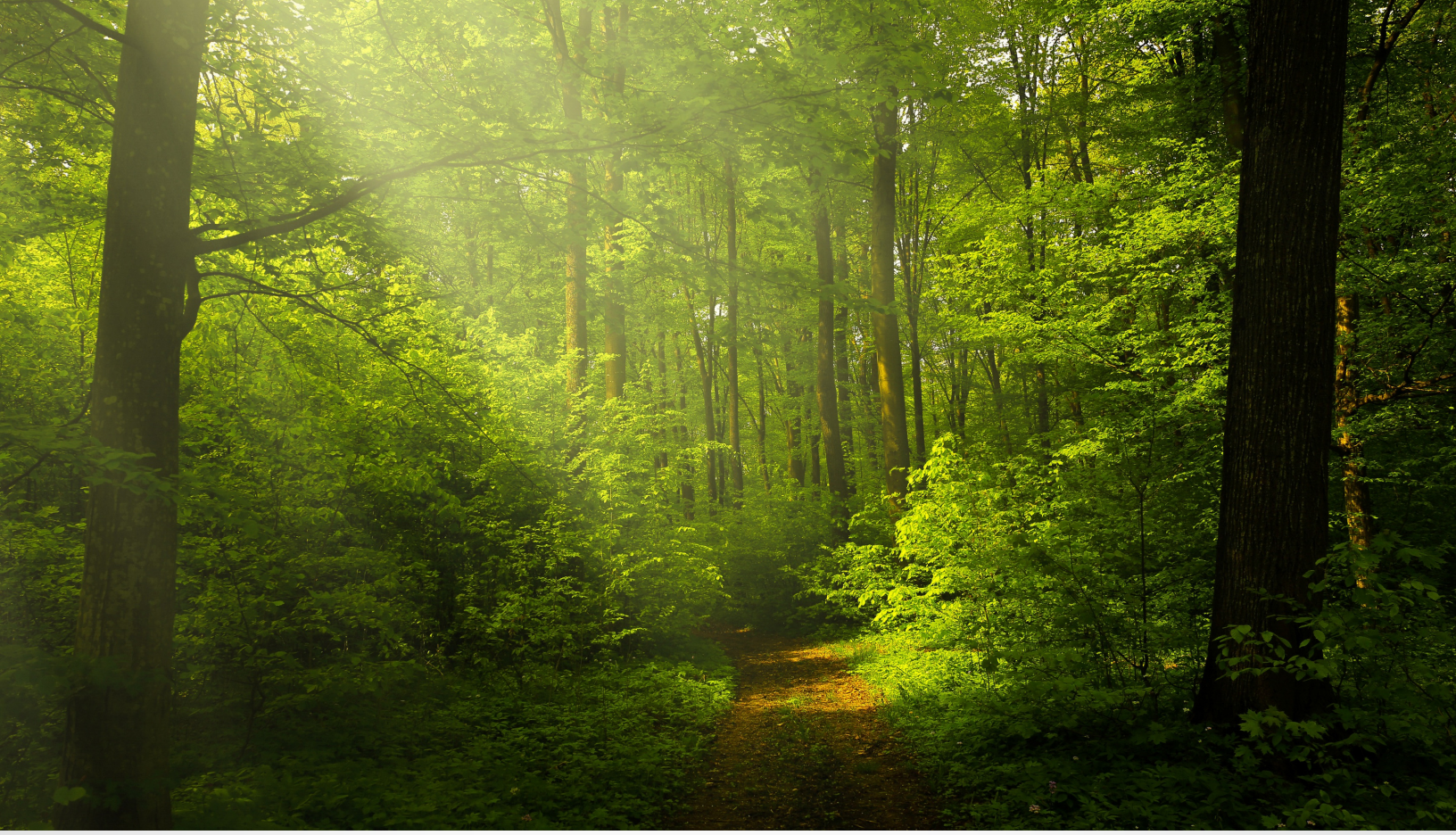
by Reginald Geoffrey L. Bayeta IV

In light of the formulation of vaccines to virus outbreaks, another problem needs to be addressed when it comes to a future worldwide crisis – the issue of antibiotic resistance. As the world moves with respect to time, the problem regarding antibiotic resistance becomes more and more prevalent, and something that has the potential to render the majority of modern medicine useless. Antibiotics are said to be our 'go-to' medicine when it comes to most diseases but lately, lots of research are concluding that it's becoming less effective as today's bacteria are continuously evolving. In the introduction of this paper, it has been said that animals are natural reservoirs or carriers of pathogens, especially with wildlife, but what about domestic animals? Chickens, pigs, cows, although commonly known as unharmful, it's been the cause of previous serious virus outbreaks and the reason lies with one thing: animal agriculture. As the demand for meat that comes from these animals increases, farming methods become more systematic and industrialized often prioritizing the overall product more than anything – neglecting animal treatment and welfare and putting them in unhygienic conditions.

The process of breeding these animals is cruel, to say the least, as they are put into cramped areas to save space and maximizing profits, which led to thousands being sick. To combat this, antibiotics are mixed into their feeds and water, making them overdosed with antibiotics. Sick or not, the drug being administered to these animals as companies discovered that administering it kills two birds with one stone: preventing sickness and makes growth rate faster. A faster growth rate leads to more meat being processed in lesser time, which equates to more profit. This led to antibiotics becoming more and more in the demand in the production of food and farming which can lead to lots of issues in the future. First, artificially accelerating the growth rate of an animal or any being for that matter equates to more stress and internal problems in their well-being. Second, using antibiotics on these animals whether for sick treatment or growth rate accelerator leads to weaker bacteria being killed in their bodies living behind those who are becoming immune or having strong resistance to the said drug. These bacteria are referred to as superbugs. As a computer engineering major, I can think of it as a computer bug that will take a hard time to fix as one, it is very hard to spot, and two, current solution to combat such bug does not exist. What is worse is that if it can propagate itself to other bacteria, it will create a huge issue in the future especially when it gets transmitted to humans. If COVID-19 is a byproduct of us exposing ourselves to the dangers of wildlife, then superbugs are arguably a product of unethical engineering and ignorance. Superbugs are somehow predicted to be discovered in the future, and maybe that's why the world continues to turn a blind eye to these issues. Quite similar to global warming, if I say so myself; most people would think that if it does not affect them, they will not even bother looking at it. If it is not visible in the present, then most people would regard it as not a problem at all. How can we combat the danger of superbugs you might ask? – it will take two major stakeholders: the people and the government. For the government, they should regulate antibiotic administration to farming animals; total banning would seem impossible, but there should be a cap. Now the problem is for the people, as we are too many on this planet. If we want to diminish the issues that concern the welfare of farming animals, then the demand for meat should decrease, and people should subscribe to plant-based foods more. If we can pull this off, this would lead to a more proper farming system and less use of antibiotics. Antibiotics are very important to our health systems, and if we do not want to render them useless, we should think more about the system that is currently laid out, and let's contribute to a change that we want to happen in order to have a healthy future be passed to the next generation.

CONCLUSION AND SOLUTIONS





UNITY AND HARMONY IN PRESERVING BIODIVERSITY

by Reginald Geoffrey L. Bayeta IV

Nature is said to be systematic and harmonic where the balance between the interaction of species is inherently conserved. From the food web, flow of water, transfer of energy, weather conditions, among lots of things, these systems are what makes nature amazing. In nature, we can find different varieties of life on this planet, which is often referred to as biodiversity. Biodiversity is what enables nature to function the way it does now – it gives us nutritious food to eat, fresh water to drink, oxygen to breathe, among other things we take for granted. These said resources came from the contribution of all species living in it, except for one – humans. We are what we can arguably consider as parasites of nature as we are so dependent on it.

There is a lot of evidence that we can point which state that nature can heal and move on by itself without human intervention. It cannot be denied that actions done by humans deal more damage than help when it comes to nature.

Ever since the start of the industrial revolution, the progression of human technology improved the quality of living in the price of damaging nature in the form of deforestation and land clearing. Not only that, as the revolution paved for methods for efficient and effective farming systems, the total world population skyrocketed as we can now sustain lots of people. This led to an increase in demand for pretty much everything, most especially food, that also gave birth to industrial agricultural systems.

Data shows that over half of the mammals on the planet comprised of livestock, and chickens make up nearly three-quarters of birds. From this situation, the species that originally live in wildlife and natural land are slowly going into extinction, and being replaced by the resources that we need to farm – either plantation or animals. This in return deals with huge damage to biodiversity and disrupts the natural balance of this world – and this is where a serious outbreak comes in.

In the capitalist world where most enterprises aim for efficiency and short-term goals, long-term goals and repercussion are often neglected and when it occurs, comes disaster. The ongoing COVID-19 pandemic is the prime example of grave repercussions for the whole world for the system that it operates. In such a highly industrialized system, everyone will suffer when something goes wrong, especially innocent animals and nature.

For the ongoing pandemic, it is evident that everyone's lives are affected in one way or another, but it is the same for animals and nature. While we can see a fraction of nature is healing, our treatment for animals is still selective and still in the grey area. In battling the pandemic concerning disease containment, we are sometimes forced to conduct massive killings of some species to prevent spreading the virus even more. This is supported by experts and years of research, but the main problem comes from the politics on how we do it. The treatment of animal lives should not be put like a toss of a coin -- we have to do it with utmost care and consideration. We should always keep in mind that we share this world with them, and without them, the balance of the ecosystem will be destroyed. This pandemic should be the reality check for everyone that the forced expansion of human progression to the domain of nature and harsh treatment to animal welfare greatly amount to the increased risk of giving birth to more lethal outbreaks in the future. With the news being repetitive on how different governments all around the world failed to respond to the outbreak, it should be evident now that everyone should push for better governance and we should be more careful about the danger of going against nature. Prevention is better than cure, that's for sure, and this can be done by investing more into science research and development, and a better health care system. More importantly, with outbreaks like these come from animal diseases, we should be more aware of the welfare of animals – which can be done by pushing for legislation that aims to prevent animal abuse and exploits. Lastly, we should be mindful of transforming nature into more industries; we should learn that the continuous destruction of nature will lead us to nowhere but chaos. It should be apparent now that a healthy environment translates to good animal welfare, which in turn beneficial for us humans as well, keeping the harmony in this world.

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