



Hon'ble Minister Promises Full Support to AWBI



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Welfare Needs of Animals in the Poultry Industry



The Plastic Cow Team



Meet the Trainer - ABC-AR

Training Centres of Excellence

Puppy Adoption – Bengaluru Girl's Amazing Initiative

AWBI Launches Humane Education Project

Be a Board Certified Animal Welfare Educator!

Upholding the belief that education and awareness are essential to strengthen the Animal Welfare movement and to build a humane public attitude, on the occasion of its Golden Jubilee year, AWBI has initiated a novel Humane Education Project.

Starting in Chennai this month, the education team from the Board will conduct Animal Welfare talks in Educational Institutions, Corporates and Government Institutions on a range of topics. This Project promises to educate the community on the following key aspects pertaining to humane lifestyles:

- □ Bio-diversity,
- □ Organic Farming,
- □ Factory Farming,
- □ Beauty Without Cruelty,
- □ Humane Customer Choices,
- □ Pet Care,
- □ Animal Rescues,
- □ Effective & Humane Ways to Control the Growing Stray Dog Population
- □ How to Behave Around Animals,
- Universal Declaration on Animal Welfare & the Five Freedoms of Animals,
- □ Animal Protection Laws.

This Project will also be executed in the following cities:

🖈 Bengaluru 🖈 Mumbai 🖈 Kolkata 🖈 Dehradun

Interested people from the community are most welcome to invite members of the Education Team from the Board to do a talk in their Offices, Colleges, or Residential Colonies.

If you are interested, you can become an AWBI Certified Animal Welfare Educator that would empower you to conduct talks for your community, institution or at your workplace.

To know more about becoming a Board Certified Animal Welfare Educator or to invite the Education Team from the Board to conduct a Programme, please visit www.awbi.org/heo or contact Mr. Sriram Vepuri at sriram.bch@gmail.com.

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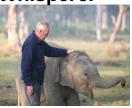




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From the Chairman's Desk

The First Word



Welfare Concerns of Working Equines

Animal welfare is a very vast discipline and covers many aspects of animal husbandry practices, preventive health care, proper nutrition, humane handling and of course, protecting the animals from any kind of abuse. Incorporating good animal welfare practices in animal husbandry enhances productivity from farm animals which in turn benefits their owners.

The OIE defines Animal Welfare as under:- An animal is in a good state of Welfare if:

- It is healthy, comfortable, well nourished & safe.
- Able to express its natural behaviour.
- Not suffering from unpleasant states such as pain, fear and distress.
- Good animal welfare entails disease prevention, veterinary treatment, appropriate shelter management, good nutrition, humane handling and humane slaughter / euthanasia.

Working Equines generate sustainable income for their owners in the developing world including India. We have over one million working equines (Horses, Ponies, Mules and Donkeys) in our country. Horse breeding and racing industry has made tremendous growth during the last two decades and generates substantial employment and revenue for the Government. Horses play a significant role in equestrian sports and entertainment events such as Polo, show jumping, eventing, dressage and in circuses. They have also been used extensively in the production of life-saving sera and vaccines for human beings. In the rural sector, equines such as ponies, mules and donkeys provide draught energy and sustainable livelihoods for the rural poor. Therefore, equines in India

Legislations to Protect the Welfare of Equines

- PCA Act ,1960 & Rules made under
- Transportation of Animal Rules (Equines), 1978 by Road, Rail and Sea
- Performing Animals Rules, 2000-2001 Race Horses, Equines used in Films, Circuses etc.
- Licensing of Farriers Rules, 1965
- Prevention of Cruelty to Draught & Pack Animals Rules, 1965

contribute a lot towards human welfare. To address some of the major welfare concerns of working equines in India, the Government of India has made the following legislations:-

AWBI is the prescribed authority for implementation of Performing Animals Rules and is monitoring the welfare of performing animals used in the racing industry, films, adfilms, stage shows and circuses. Performing animals are often subjected to ill-treatment during the course of their transportation, training, racing and shooting of films etc. All performing equines are required to be registered with AWBI.

Lack of knowledge about hoof care / shoeing.

Lack of proper pasture / grazing facilities.

Lack of enforcement of Animal Protection Laws.

Sub-optimal training and over-training.

Inhumane handling / ill-treatment of animals resulting

Lack of properly trained farriers.

in injury / fear.

Whipping of race horses is a serious welfare concern. As per the rules, only air cushioned whips are to be used on racing horses and that too, not more than 8 times in a race. There are also restrictions laid down on the use of performance enhancement drugs such as anabolic steroids.

Key Issues / Challenges to the Welfare of Working Equines

- Equine welfare vis-à-vis human poverty and greed.
- Equine Welfare education needs to be integrated in Veterinary Education System and Practice.
- ✤ Inadequate / poor nutrition.
- ✤ Lack of proper Veterinary health care.
- ✤ Lack of proper saddlery and line gear.
- ✤ Lack of proper transportation facilities.

Code of Conduct for Welfare of Sporting Horses

- Welfare of Horses must be considered paramount in all equestrian events
- The well-being of the horse shall be above the demands of breeders, trainers, owners, dealers, organizers, sponsors & officials.

 \Leftrightarrow

- All handling must be humane and Veterinary treatment must ensure the health and welfare of the horses.
- Highest standards of nutrition, health, sanitation and safety shall be encouraged and maintained at all times.
- During transportation, adequate provision must be made for ventilation, feeding, watering and adequate space allowances as prescribed in the rules.
- All training and riding methods must not subject the horse to any kind of abuse.
- Adequate monitoring mechanism should be in place to ensure that the welfare of horses is respected.
- Medication control mechanism should be in place to prevent abuse of banned substances and to ensure that race horses compete on their own merit.

Conclusion

- Working equines are playing an important role in sustaining the livelihoods of people living in the developing countries.
- Adequate nutrition and good health are essential to good welfare and efficient work output.
- Correct type of harness and line gear is important to good welfare and efficient work output of working equines.
- Proper care of hooves and appropriate shoeing is required for good equine welfare.
- Legislation for equine welfare must be respected and implemented to protect them from injury, pain and suffering.
- Veterinarians are the custodians of Animal Welfare.
 All Animal Welfare initiatives finally result in Human Welfare.



Remembering The Board's Early Days...

I am delighted that I am part of the Animal Welfare Board of India in its 50th year. I have been involved with the Board since it was founded in 1962. Rukmini Devi, the first Chair of the AWBI, was close to the Blue Cross which was then just a group of five volunteers. Working out of a small old building in Adyar, near the present Malar Hospital,

the Board was responsible for much awareness raising on animal welfare issues which were never thought of, in those days.

I was particularly interested in trying to stop the abuse of animals in research. Rukmini Devi was totally committed to this and was one of the first to refuse the mandatory (in those days) vaccinations required for obtaining visas for many foreign countries. The only organization in India other than the Blue Cross of India openly campaigning for this cause was the Bombay Humanitarian League under Shri J. N. Mankar. It was the campaigning of the Blue Cross that was responsible for the AWBI to recommend to the Government of India that a Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) be formed as envisaged in Chapter IV – Section 15 of the PCA Act. Thus, the first CPCSEA came into being and I had the privilege to depose twice before this Committee about the dismal state of laboratories in India.

Another barbaric cruelty that Rukmini Devi campaigned tirelessly against was the use of animals in entertainment. As usual, in many aspects of progressive legislation and campaigns, India led the way. In 1964 - almost fifty years ago - one of the earliest publications of the Animal Welfare Board was a booklet titled,"*Circuses - Amusement for the Uncivilised*".

However, 35 years passed by before the above subjects were taken up effectively by the Government. In 2001, the Ministry of Environment & Forests, under whom the AWBI had found a home passed rules covering the breeding and experimentation on animals as well as the Performing Animals Rules. It is a matter of pride that the Performing Animals Rules, as amended in 2005 are now being implemented in an effective way. There can be no two opinions that great progress has been made over the last 50 years. The passage of the proposed Animal Welfare Bill and the Rules relating to breeding and pet shops will be another major step forward. \Box



Voice of the Voiceless

I am the Voice of the Voiceless, Through me the dumb shall speak, Till the world's deaf ear be made to hear, The wrongs of the wordless weak. Oh! Shame on the mothers of mortals, Who do not stoop to teach, The sorrow that lies in dear dumb eyes, The sorrow that has no speech. From street, from cage, from kennel, From stable and from zoo. The wall of my tortured kin proclaims the sin, Of the mighty against the frail. But I am my brother's keeper, And I shall fight their fight, And speak the word for beast and bird, Till the world shall set things right.



Ela Wheeler Wilcox

Policy Issues

Impact of Our Food Habits On Animal Welfare & Environment

Maj. Gen. (Retd), Dr. R. M. Kharb, AVSM Chairman, AWBI

That animals share with humans a common field of consciousness has now been publicly affirmed by eminent neuroscientists. On July 7th, 2012, at the University of Cambridge, some of the world's leading neuroscientists, physicists and many eminent researchers came to a common agreement, that animals share with humans, a common frame of consciousness.

The Cambridge Declaration of Consciousness, a historic declaration signed by all the delegates at the Francis Crick Memorial Conference on Consciousness in Human and non-Human Animals, at Churchill College, University of Cambridge, in the presence of the renowned physicist, Stephen Hawking is a great milestone for the world's animal welfare movement.

The Declaration states, "The absence of a neocortex does not appear to preclude an organism from experiencing affective states. Convergent evidence indicates that non-human animals have the neuroanatomical, neurochemical, and neurophysiological substrates of conscious states along with the capacity to exhibit intentional behaviours. Consequently, the weight of evidence indicates that humans are not unique in possessing the neurological substrates that generate consciousness. Non-human animals, including all mammals and birds, and many other creatures, including octopuses, also possess these neurological substrates."

Further, the Declaration affirms, "neural circuits supporting behavioural / electro-physiological states of attentiveness, sleep and decision making appear to have arisen in evolution as early as the invertebrate radiation, being evident in insects and cephalopod mollusks (e.g., octopus). Birds appear to offer, in their behaviour, neurophysiology, and neuroanatomy a striking case of parallel evolution of consciousness. Evidence of near human-like levels of consciousness has been most dramatically observed in African grey parrots.

Mammalian and avian emotional networks and cognitive micro-circuitries appear to be far more homologous than previously thought. Moreover, certain species of birds have been found to exhibit neural sleep patterns similar to those of mammals, including REM sleep and, as was demonstrated in zebra finches, neurophysiological patterns, previously thought to require a mammalian neocortex. Magpies in particular have been shown to exhibit striking similarities to humans, great apes, dolphins, and elephants in studies of mirror self-recognition."



What the Declaration implies is that non-human animals experience a level of consciousness that is similar to human consciousness. In the light of these observations and with the fact that the Government of India is a signatory to the Five Freedoms, that all animals must have, it becomes mandatory then, that we as human beings recognize, respect and honour our animal friends with whom we share this great planet.

Stopping and reducing the consumption of animals for food and fiber is the ¹

single most important step that animal welfare activists have a moral responsibility to apply, not just in their own life but also by actively communicating this message. As much as Animal Welfare Organizations participate in providing care for animals by providing shelter, health-care and food, it has now become the need of the hour that all AWOs in the country actively come forward in large numbers to promote the message of compassionate, environment friendly, plant based food and lifestyle choices.

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and neurophysiological substrates of conscious states along with the capacity to exhibit intentional behaviours.

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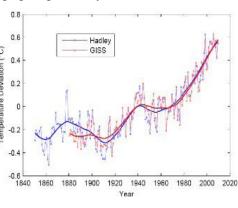
Policy Issues



As Sir Paul McCartney has rightly observed, "If slaughter-houses had glass walls, everyone would be a vegetarian". The immense cruelty, torture and suffering that animals undergo, from their birth, right till the time of slaughter is unimaginable. If the horrors of the slaughterhouse and the rearing of animals for food and fiber is not compelling enough for human beings to switch to a plant based diet, the emerging nightmare of droughts, water and food shortage precipitated by the climate crisis will

drive people to adopt plant based foods.

The adoption of plant based, food and lifestyle choices is the only way forward, if human beings as a species are to survive on this planet. The reasons are clear, the crisis of climate change is having its impact on different countries all over the world extreme and unpredictable weather events, heat waves, droughts, floods, earthquakes, food scarcity, water scarcity.... According to FAO, "Currently, 40% of the world's population is affected by



water scarcity. By 2025, 1.8 billion people will be living in countries or regions with absolute



Source: www.fao.org/nr/water

world's population could be living under of water stressed scenario, and the reality of the environmental crisis emerging, it will become inevitable that, human beings adopt exclusively plant I Melting of the glaciers & based foods. In an assessment of the severe water crisis that the world will D Large scale displacement of face in the years ahead, the recent report titled, "Feeding a Thirsty World

Challenges and Opportunities for a Water and Food Secure Future" released by the Stockholm International Water Institute, SIWI during World Water Week 2012, states that, "the analysis showed that there will not be enough water available on current crop-lands to DLoss of Biodiversity. produce food for the expected population in 2050 if we follow current trends and changes

Impact of Climate Change

- **D** Extreme weather events Heat waves, hurricanes & tsunamis,
- □ Rising sea levels, melting of the glaciers & changing
- precipitation patterns, □ Water Scarcity – Over 1.8
- billion people will be affected, □ Food Crisis – Already close to
- a billion hungry people,
- Emergence of New Diseases & rapid spread of vector borne bacterial & viral diseases,
- water scarcity, and two-thirds of the D Soil erosion & Falling water tables.

 - Deforestation,
 - Desertification of grazing lands.
 - Flooding of the plains,
 - over half a million people,
 - □ Rising sea levels,
 - Drought & Decreased Crop vields.

"the analysis showed that there will not be enough water available on current croplands to produce food for the expected population in 2050 if we follow current trends and changes towards diets common in Western nations (3,000 kcal produced per capita, including 20 per cent of calories produced coming from animal proteins).

There will, however, be just enough water, if the proportion of animal based foods is limited to 5 per cent of total calories and considerable regional water deficits can be met by a well organised and reliable system of food trade."

towards diets common in Western nations (3,000 kcal produced per capita, including 20 per cent of calories produced coming from animal proteins). There will, however, be just enough water, if the

proportion of animal based foods is limited to 5 per cent of total calories and considerable regional water deficits can be met by a well organized and reliable system of food trade." In one study carried out by Zimmer and Renault (2003), it was noted that the livestock sector may account for some 45 per cent of the global budget of water used in food production. Rearing large populations of animals for food is not environmentally unsustainable. To draw a comparison, it takes about 600 liters of water to produce 1 kg of wheat, but it may take nearly 1 lakh liters of water to produce 1 kg of beef. Besides this, the large scale rearing of animals for food and fiber causes the contamination of the water bodies as well as the groundwater table, through the release of concentrated amounts of



Source: www.fao.org/nr/water

nitrates and phosphorous, causing eutrophication of the water bodies and nitrate toxicity in drinking water.

Policy Issues

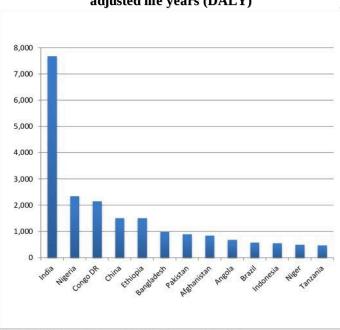
Another very serious threat to human health that emerges with intensive livestock rearing practices is the transmission of zoonotic diseases like bird flu, tuberculosis, leptospirosis, anthrax and several other diseases. In a recent study carried out at the International Livestock Research Institute (ILRI) in Kenya, that assessed 56 zoonotic diseases, that account for as much as 2.5 billion cases of human illness and 2.7 million human deaths a year, India emerged as one of the hotspots for the occurrence of large and frequent outbreaks of zoonotic diseases. The study included, 1,000 surveys covering more than 10 million people, 6 million animals and 6,000 food or environment samples. In their study, the authors report, "We identified the 13 zoonoses most important to poor livestock keepers because of their impacts on human health, livestock sector, amenability to agriculture-based control, and other criteria. These were, in descending order of importance: zoonotic gastrointestinal disease; leptospirosis; cysticercosis; zoonotic tuberculosis; rabies; leishmaniasis; brucellosis; echinococcosis; toxoplasmosis; Q fever; zoonotic trypanosomiasis, hepatitis E; and anthrax."

Table 2.1 The most important zoonoses in terms of human health impact, livestock impact, amenability to agricultural interventions, severity of disease and emergence (data from WHO and authoritative literature: when several authoritative estimates the mid point is given)

| Disease | Wildlife interface | Deaths | Affected | Death | Affected> | Animal | Farm | Other | Total |
|---------------------------------|--------------------|------------|---------------|--------|-----------|---------|---------|------------|-------|
| | | human | humans | >1000 | 1 million | impacts | interve | (score =1) | score |
| | | annual | annual | people | people | high | ntion | P2 | |
| Gastrointestinal (zoonotic) | Important | 1,500,000 | 2,333,000,000 | 2 | 1 | 1 | 1 | 0 | 5 |
| Leptospirosis | Very important | 123,000 | 1,700,000 | 2 | 1 | 1 | 1 | 0 | 5 |
| Cysticercosis | Some importance | 50,000 | 50,000,000 | 2 | 1 | 1 | 1 | 0 | 5 |
| Tuberculosis (zoonotic) | Some importance | 100,000 | 554,500 | 2 | 0 | 1 | 1 | 0 | 4 |
| Rabies | Important | 70,000 | 70,000 | 2 | 0 | 0 | 1 | Severe | 4 |
| Leishmaniasis | Important | 47,000 | 2,000,000 | 2 | 1 | 0 | 1 | 0 | 4 |
| Brucellosis | Some importance | 25,000 | 500,000 | 2 | 0 | 1 | 1 | 0 | 4 |
| Echinococcosis | Important | 18,000 | 300,000 | 2 | 0 | 1 | 1 | 0 | 4 |
| Toxoplasmosis | Important | 10,000 | 2,000,000 | 1 | 1 | 1 | 1 | 0 | 4 |
| Q fever | Important | 3,000 | 3,500,000 | 2 | 1 | 0 | 1 | 0 | 4 |
| Trypanosomosis (zoonotic) | Important | 2,500 | 15,000 | 2 | 0 | 1 | 1 | 0 | 4 |
| Anthrax | Some importance | 1,250 | 11,000 | 2 | 0 | 1 | 1 | 0 | 4 |
| Hepatitis E * | Some importance | 300,000 | 14,000,000 | 2 | 1 | 0 | 1 | 0 | 4 |
| Chagas | Important | 10,000 | 8,000,000 | 2 | 1 | 0 | 0 | 0 | 3 |
| Chickungunya | Very important | 12,500 | 500,000 | 2 | 0 | 0 | 0 | Emerge | 3 |
| Clostridium difficile disease | Possible imporance | 3,000 | 300,000 | 2 | 0 | 0 | 0 | Emerge | 3 |
| Dengue fever | Minor | 20,000 | 50,000,000 | 2 | 1 | 0 | 0 | 0 | 3 |
| Ebola | Very important | 500 | 800 | 2 | 0 | 0 | 0 | Severe | 3 |
| Hanta disease | Very important | 1,750 | 175,000 | 2 | 0 | 0 | 0 | Emerge | 3 |
| Avian influenza | Important | 77 | 145 | 0 | 0 | 1 | 1 | Emerge | 3 |
| Bov. Spongiform Encephalopathy^ | Some importance | 182 | 188 | 0 | 0 | 1 | 1 | Severe | 3 |
| Psittacosis | Important | 2,250 | 22,000 | 2 | 0 | 0 | 1 | 0 | 3 |
| Japanese encephalitis | Possibly, bats | 11,000 | 40,000 | 2 | 0 | 0 | 1 | 0 | 3 |
| Buffalo pox | Not important | Negligible | Common | 0 | 1 | 1 | 1 | 0 | 3 |
| Rift Valley fever | Important | 45 | 150 | 0 | 0 | 1 | 1 | Emerge | 3 |

Note: high human mortality gets a double weight of as the most important criterion for many stakeholders. Total score = (human death x 2) + (humans affected) + (high livestock impacts) + (farm intervention possible) + (other concerns: severe or emerging disease). The maximum possible score is therefore 6 and the minimum 0.

* Importance of zoonotic transmission not fully known ^ Not a problem in poor countries



Health burden of Zoonoses in million disability adjusted life years (DALY)

The above table has been cited from the ILRI Report, Mapping of poverty and likely zoonoses hotspots: Zoonoses Project 4 submitted to the Department for International Development

The investigators report that, "Countries appearing multiple times at the top of multiple metrics (in descending order of importance) are: India, China, Bangladesh, Ethiopia, Nigeria, Pakistan, Congo DR, Indonesia, Myanmar, and Tanzania." The study found a 99 per cent correlation between country levels of protein-energy malnutrition and the burden of zoonoses.

Besides the water crisis, from the environmental perspective, and the zoonotic risk from the health angle, the farming of animals for food and fibre alone is responsible for 18% of greenhouse gas emissions measured in CO₂ equivalent. To cite the FAO Report, 'Livestock's Long Shadow', "In all, farm animals account for 70% of all agricultural land and 30% of the land surface of

It has been estimated that, "Livestock-related land use changes may cause the emission of 2.4 billion tonnes of CO_2 per year". In addition to the massive release of greenhouse

the planet.

gases seen in intensively confined industrial animal agriculture production processes, the production of animal based foods is Animal Citizen, July-September, 2012

[&]quot;Farm animals account for 70% of all agricultural land & 30% of the land surface of the planet."

From Global Burden of Disease, World Health Organisation, 2008

Policy Issues

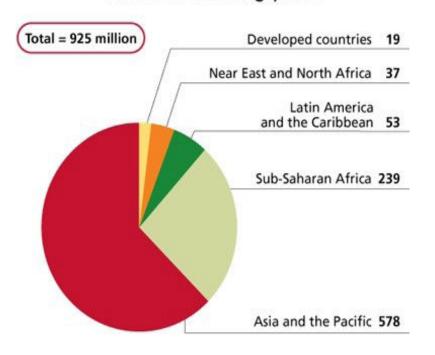
extremely energy intensive, resource intensive and environmentally very polluting. Besides, the farming of animals for food and fibre also causes the release of heavy metals, drug resistant strains of antibiotics and even leading to the emergence of new and dangerous pathogens, as in the case of swine flu, bird flu and Ebola virus outbreaks. **"Worldwide, one out of three**

Additionally, the farming of animals for food and fibre causes deforestation of vast tracts of forest land. This is completely unsustainable as the forests are the planet's precious carbon dioxide absorption mops. Deforestation alone causes the emission of 1.5 billion tons of CO_2 each year. To protect the planet from the hazardous impacts of climate change, the forests need to be restored. Obtaining food from animal sources is not a sustainable practice as it is energy intensive and puts a severe strain on the earth's limited water and land resources.

India, as a country with a great tradition of ahimsa, must revive and actively champion the promotion of plant based foods because every individual who takes this single step to switch towards a plant based food choice, not only helps to mitigate the adverse impacts of climate change but also stays protected from the adverse health effects caused by the consumption of animal foods. To cite some of the pertinent facts in this area, according to the 2012 WHO Report, "Worldwide, one out of three adults suffers from high blood pressure. One in 10 adults has diabetes and nearly half a billion people or 12% of the world's population is obese". For India, these figures are alarming because diabetes and heart disease in India have already

"Worldwide, one out of three adults suffers from high blood pressure. One in 10 adults has diabetes and nearly half a billion people or 12% of the world's population is obese". For India, these figures are alarming because diabetes and heart disease in India have already crossed the safety thresholds."

Where do the hungry live?



diseases recommends, "intake of a minimum of 400 grams of fruit and vegetables per day (excluding potatoes and other starchy tubers) for the prevention of chronic diseases such as heart disease, cancer, diabetes and obesity, as well as for the prevention and alleviation of several micro-nutrient

Dr. Dean Ornish in his pioneering research work has shown that coronary heart disease can be reversed by switching to low fat, plant based diets and by making suitable lifestyle changes. Similarly, work done by Dr. Neal Barnard has confirmed that blood sugar levels can be better controlled and diabetes can be prevented by switching to low fat, high fiber, vegan diets. According to the American Dietetic Association and Dietitians of Canada, "Vegetarians have lower blood cholesterol levels, lower blood pressure, lower rates of hypertension, lower rates of death from Ischaemic Heart Disease, and lower incidence of type 2 diabetes as well as prostate and colon cancer".

crossed the safety thresholds.

India, now has one of the world's highest levels of heart disease and diabetes. The consumption of diets high in saturated animal foods coupled with a sedentary lifestyle is one of the main reasons why this is happening. According to WHO, in 2008, 36 million (63%) of 57 million deaths worldwide were due to (Non-communicable Chronic Diseases) NCDs. Deaths from cardiovascular illnesses accounted for 48% of all NCD related deaths, while cancer caused 21% of all deaths.

As much as 80% of deaths due to NCDs occurred in low and middle-income countries. A report by WHO in 2002 states that, "Low intake of fruit and vegetables is estimated to cause about 31% of ischaemic heart disease, 11% of strokes worldwide and 19% of gastrointestinal cancers. It has been estimated that 2.7 million lives can be saved by increasing fruit and vegetable intake".

The Joint FAO/WHO Expert Consultation on diet, nutrition and the prevention of chronic



deficiencies".

Policy Issues

My request to all Animal Welfare Organizations, Animal Welfare Activists, Veterinarians, Veterinary Assistants and Farmers engaged in looking after animals or providing health care to animals is to start adopting completely plant based food choices for themselves and their staff. This is with special reference to AWOs that are engaged in looking after the welfare of dogs, cats and wild animals. I wish to add that, though dogs and cats are carnivorous, they can adapt very well and maintain excellent health on vegetarian and even, well fortified vegan diets. After all, if people in Animal Welfare Organizations are not aware of the interconnections between their food and lifestyle choices and its impact on the environment, who else is there to support and speak up to alleviate the suffering of the poultry birds, pigs, sheep, goats and cattle – all our helpless animal friends trapped in the web of industrial animal agriculture and suffering in the factory farms, tabelas, poultry farms and battery cages of our country. Further, I would request all AWOs in the country to have posters, pamphlets, booklets and sufficient public education material available at their shelters to create awareness on these very relevant issues. I also appeal to the Government of India to ensure that all canteens in all Central and State Government institutions, Railways, Universities, Educational Institutions and Prisons serve exclusively vegetarian foods and soya based meat substitutes. Considering that plant based foods can provide food in plenty to feed the current population many times over, it is vital that the adoption of plant foods as a lifestyle choice become a part of the culture and tradition of the people of all nations. Only by doing so, would we, as a species truly reflect our humanity, not only to relieve the plight of our suffering brethren, but also to express our compassion to reduce the suffering of our fellow animal friends. In a planet where, over 25,000 people die of hunger, and over a billion people go to bed hungry everyday, it is vital that plant based food choices be given the highest priority not only in agriculture but also in food and health policies framed by the Planning Commissions of Governments, not only in India and other developing nations and more so, in all the developed nations of the world too. \Box

References

1. The Cambridge Declaration on Consciousness in non-human animals. First Annual Francis Crick Memorial Conference, First Annual Francis

Crick Memorial Conference, July 7th, 2012. http://fcmconference.org/

2. International Decade for Action: Water for Life 2005 to 2015. http://www.un.org/waterforlifedecade/scarcity.shtml

3. Jägerskog, A., Jønch Clausen, T. (eds.) 2012. Feeding a Thirsty World - Challenges and Opportunities for a Water and Food Secure Future.

Report Nr. 31. SIWI, Stockholm. www.siwi.org/.../Reports/Feeding_a_thirsty_world_2012worldwaterweek_report_31.pdf

4. FAO 2006, UN FAO "Livestock's Long Shadow", Rome 2006 . ftp://ftp.fao.org/docrep/fao/010/a0701e/a0701e00.ppdf

5. IPCC Fourth Assessment Report – Synthesis Report 2007. www.ipcc.ch/.../publications_ipcc_fourth_assessment_report_synthesis_report.htm 6. Grace, D.; Mutua, F.; Ochungo, P.; Kruska, R.; Jones, K.; Brierley, L.; Lapar, L.; Said, M.; Herrero, M.; Pham Duc Phuc; Nguyen Bich Thao; Akuku, I.; Ogutu, F. Mapping of poverty and likely zoonoses hotspots: Zoonoses Project 4. Report submitted from International Livestock Research Institute to the Department for International Development 18th June 2012 . Online version - 2nd July 2012 http://cgspace.cgiar.org/handle/10568/21161

7. The World Health Report, Health Statistics, 2012 Report. Geneva, World Health Organization, 2012.

http://www.who.int/mediacentre/news/releases/2012/world_health_statistics_20120516/en/index.html

8. Fruit and vegetables for health. Report of a Joint FAO/WHO Workshop, 1-3 September, 2004, Kobe, Japan. www.fao.org/ag/magazine/FAO-WHO-FV.pdf

9. Cause-specific mortality: regional estimates for 2008. Geneva, World Health Organization, 2011.

http://www.who.int/healthinfo/global_burden_disease/estimates_regional/en/index.html

10. Causes of death 2008: data sources and methods. Geneva, World Health Organization, 2011

http://www.who.int/healthinfo/global_burden_disease/cod_2008_sources_methods.pdf

11. Global health risks: mortality and burden of disease attributable to selected major risks. Geneva, World Health Organization, 2009. www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf -

12. The World Health Report, Reducing risks, promoting health. Geneva, World Health Organization, 2002.

www.who.int/whr/2002/en/whr02_en.pdf

13. Diet, nutrition and the prevention of chronic diseases. Report of a Joint FAO/WHO Expert Consultation. Geneva, World Health Organization, 2003 (WHO Technical Report Series, No. 916). whqlibdoc.who.int/trs/who_trs_916.pdf

14. Ornish D, Scherwitz LW, Billings JH, Gould KL, Merritt TA, Sparler S, Armstrong WT, Ports TA, Kirkeeide R, Hogeboom C, Brand RJ. Intensive lifestyle changes for reversal of coronary heart disease: Five-year follow-up of the Lifestyle Heart Trial, Journal of the American Medical Association. 1998; 280: 2001-2007 . http://jama.jamanetwork.com/article.aspx?articleid=188274

15. Turner-McGrievy GM, Jenkins DJ, Barnard ND, Cohen J, Gloede L, Green AA. Decreases in dietary glycemic index are related to weight loss among individuals following therapeutic diets for type 2 diabetes. J Nutr. 2011 Aug;141(8):1469-74. Epub 2011 Jun. Department of Nutrition, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC 27599, USA.

16. Barnard ND, Cohen J, Jenkins DJ, Turner-McGrievy G, Gloede L, Green A, Ferdowsian H.A low-fat vegan diet and a conventional diabetes diet in the treatment of type 2 diabetes: a randomized, controlled, 74-wk clinical trial. Am J Clin Nutr. 2009 May;89(5):1588S-1596S. Epub 2009 Apr 1. Department of Medicine, George Washington University School of Medicine, Washington, DC, USA.

http://pcrm.org/health/medNews/improving-diabetes-with-a-low-fat-vegan-diet-

17. Position of the American Dietetic Association and Dietitians of Canada: vegetarian diets. <u>Can J Diet Pract Res.</u> 2003 Summer;64(2):62-81. <u>American Dietetic Association; Dietitians of Canada.www.vrg.org/nutrition/2003_ADA_position_paper.pdf</u>

Animals cannot speak, but can you and I not speak for them and represent them?

Let us all feel their silent cry of agony and let us all help that cry to be heard in the world. - Rukmini Devi Arundale

Non-violence and kindness to living beings is kindness to oneself. For thereby one's own self is saved from various kinds of sins and resultant sufferings and one is able to secure his own welfare. - Mahavira

Animals are our younger brothers and sisters, also on the ladder of evolution but a few rungs lower. It is an important part of our responsibilities to help them in their ascent, and not to retard their development by cruel exploitation of their helplessness.- Lord Dowding 🗖

AWBI News

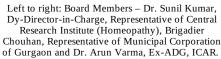
Minister of Environment & Forests, Smt Jayanthi Natarajan Ji Visits Board's Office in Chennai

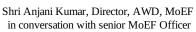


Hon'ble Minister was given a warm welcome to the AWBI office by the staff and Board Members and at the board room she was welcomed warmly by a sapling given by Dr. Chinny Krishna, Hon'ble Vice-Chair, AWBI, a bouquet given by senior Board Member, Mrs Norma Alvares and a shawl given by Board Member, Mrs Amala Akkineni.



Left to right: Board Members, Dr. J.C. Kochar, Representative of SPCA, Chandigarh, Shri Doulat Jain, Representative of SPCA, Chennai and Shri Guljarilal Soni, Representative of Rajasthan Panjrapole Society.





Address by Hon'ble Chairman, AWBI, Maj. Gen. (Retd) Dr. R. M. Kharb, AVSM at 37th GM



While warmly welcoming Hon'ble Minister of Environment and Forests, Smt Jayanthi Natarajan to the Board's office, Hon'ble Chairman in his address to the Hon'ble Minister said, "India has a tradition of Ahimsa that is over 2500 years old and dates back to the time of Lord Buddha, Lord Mahavira and the great Emperor Ashoka. In those days, Animal Welfare formed an integral part of people's lives. In fact, the practice of setting up Gaushalas or institutions to protect the welfare of unproductive, sick and aging cattle was part of India's ancient culture and tradition, even before 2500 years. Similarly, it was a custom in those days to set up hospitals and Panjrapoles to treat sick animals. However, in the Western world, the Animal Welfare Movement

has taken off only in the late 20th century." He added, "The quality of animal welfare that is seen in a society reflects the moral and spiritual evolution of the people of that society and as Gandhiji has rightly observed, The greatness of a nation and its social development is judged by the way its people treat their animals."

While talking about the key role played by the Founder Chairperson, Gen Kharb said, "We salute Smt. Rukmini Devi Arundale for her efforts to protect the welfare of the animals of India by starting a full-fledged Animal Welfare Board, with the support of Pandit Jawaharlal Nehru. It is to her credit that she had the vision to start the Animal Welfare Board, as an institution under the Government of India, and



"India is now a signatory to the Universal Declaration on Animal Welfare which recognizes that animals are sentient beings and respects the five freedoms that all animals must have freedom from hunger and thirst, freedom from fear and distress, freedom from pain, injury and disease, freedom from discomfort and freedom to express normal patterns of behaviour." that is a great honour for our country. Despite having started AWBI way back in 1962, India continues to remain the only country in the world with a fully functional Animal Welfare Board

working for the welfare of India's animals, directly under the Government of India." Referring to the immense contribution that animals have made to human welfare, Hon'ble Chairman said, "Since time immemorial, animals have contributed greatly through food and fabric, by providing draught energy power, in research and in education, in entertainment and in recreational activities and by providing friendship to the elderly and to children, families and communities." Stating that Animal Welfare is now a serious issue of global concern, Hon'ble Chairman said, "India is now a signatory to the Universal Declaration on Animal Welfare which recognizes that animals are sentient beings and respects the five freedoms that all animals must have – freedom from hunger and thirst, freedom from fear and distress, freedom from pain, injury and disease, freedom from discomfort and freedom to express normal patterns of behaviour."

He stressed that the primary responsibility of the Board has been to serve as an Advisory body to the Government of India. Elaborating about this he said, "The Animal Welfare Board of India has kept the Animal Welfare Laws under constant review and advised the Government from time to time to effect necessary amendments. Besides, the Board has contributed greatly to enlarging the scope of Animal Welfare activities in the country and facilitated the the formation of many new AWOs. In fact, in the late 80s there were just 89 AWOs and currently we have over 2978 registered AWOs."

Focusing on the key role that AWBI has played in taking forward the stewardship of the Animal Welfare Movement in the country, Hon'ble Chairman said, "The Animal Welfare Board of India acts as a facilitator to work at the grass-roots level to promote animal welfare initiatives all over the country, by providing financial assistance and organizing Training Programmes. Explaining about the various kinds of grants offered by the Board, Hon'ble Chairman said, "The Board offers grants for construction of animal shelters and watering troughs, for first aid and rescue of animals from illegal slaughter, and relief in times of natural calamities. Besides, the Board also provides financial support for providing treatment for sick and injured animals as well as assistance for the purchase of ambulance for the transport of ailing animals."

AWBI News

Special Report – Hon'ble Minister's Visit

Highlighting some of the Board's achievements, Hon'ble Chairman, said, "AWBI has successfully implemented a New Model of Participatory Animal Welfare in the entire state of Tamil Nadu (with the exception of Chennai city), Delhi,

"With AWBI's support for ABC-AR initiatives. several cities in India like Jaipur, Chennai, Kalimpong and Gangtok have become rabies free."

Hyderabad, Shimla, Kolkata, Ludhiana, Srinagar, Ahmedabad and many more Municipal Corporations, with 50% funding shared with Civic bodies. With AWBI's support for ABC-AR initiatives, several cities in India like Jaipur, Chennai, Kalimpong and Gangtok have become rabies free." He added that, "It is mainly because of the assistance of grants and support from AWBI, that around 1.5 lakh stray dogs are sterilized and vaccinated every year in the country."

Drawing attention to the key role that the Board has played in improving standards of animal healthcare and welfare in the country, he said, "The Board has been involved in upgrading the professional skills of stakeholders by providing excellent Training Programmes that are on par with international standards of animal welfare." He added that, "With the collaboration and support of three International Organizations - Humane Society International, Vets Beyond Borders and Worldwide Veterinary Services, AWBI



conducts ABC-AR Training Programmes for Veterinarians, Veterinary Assistants, Dog catchers and Programme Managers."

Referring to the Board's contribution towards popularizing Animal Welfare initiatives in the country, Hon'ble Chairman said, "The Board has played a key role role in initiating and encouraging community participation – with more and more people in the community joining hands to carry forward the movement of treating animal life with respect, due to Humane Education Programmes supported by AWBI e.g. Training Programmes conducted by Karuna Clubs and Blue Cross."

"India has over

20 million stray cattle that are often left on the streets

to fend for themselves.

The Board has helped

Gaushalas to install biogas

plants to harness the energy of biomass to produce electricity, so as to utilize methane gas and also to make organic fertilizers and several products of great utility."

With reference to the Board's key role in protecting wild animals from use in circuses, Gen Kharb said, "The Board has successfully implemented the Ban on Training and Exhibition of six species of animals as performing animals. Additionally, to ensure the well-being of animals used in circuses, AWBI conducts regular surprise checks." He added that another very important area where the Board had greatly helped to reduce cruelty was in supervising and monitoring the use of animals in the entertainment industry. Referring to the Board's achievement in this area he said, "The Board has protected the Performing Animals used in films/racing industry from being subjected to pain and suffering through implementation of the Performing Animals Rules."

Speaking about the cruelty suffered by animals in the poultry industry, he said, "In the past two years, the Board's intervention has greatly helped to minimize cruelty to animals in the poultry industry. With intervention from AWBI, millions of egg laying hens in the country have been saved from the cruel commercial practice of keeping

them in battery cages and several states have now banned this cruel practice". Referring to another cruel practice prevalent in the Poultry industry, he said, "The Board has now stopped the cruel practice of forced moulting in the poultry industry."

Another important milestone that has been achieved by the Board has been in organizing Training Programmes for Gaushalas and helping them to be self-sustaining. He said, "India has over 20 million stray cattle that are often left on the



streets to fend for themselves. The Board has helped Gaushalas to install biogas plants to harness the energy of biomass to produce electricity, so as to utilize methane gas and, also to make organic fertilizers and several products of great utility like phenyl, roofing and flooring materials, detergents and Panchagavya medicines which have great value in the treatment of many chronic human ailments."

[&]quot;A reduction of meat consumption by only 10% would result in about 12 million more tons of grain for human consumption. This additional grain could feed all of the humans across the world who starve to death each year- about 60 million people!" - Marc Bekoff, Animals Matter: A Biologist Explains Why We Should Treat Animals with Compassion and Respect

AWBI News

Special Report – Hon'ble Minister's Visit

He added that another area where the Board has stepped in to improve welfare conditions for cattle in the country is by stopping the production of unwanted low-worth animals in Gaushalas through adoption of humane castration of bulls / male calves. Hon'ble Chairman also informed the Hon'ble Minister that it is only after diligent efforts made by AWBI that Animal Welfare has been introduced as a subject in the curriculum of Veterinary Colleges in the country. Doing so will also serve to promote humane alternatives to the use of animals in teaching through the 4 Rs – Reduction, Refinement, Replacement and



Rehabilitation.

Referring to the challenges faced by the Board, Hon'ble Chairman said that a very serious concern is that, "Many of the states are having non functional State Animal Welfare Boards and district societies for prevention of cruelties to animals. Due to this there is inadequate enforcement of Animal Welfare Laws in the country." He also noted that, "with a marked increase in the human and animal populations in the country, there has also emerged a growing increase in the incidence of human-animal conflicts and inhumane killing of animals such as street dogs and often there is apathy to check such cruelties due to lack of effectively functioning State Animal Welfare Boards as

well as police personnel sensitized to the cause of Animal Welfare issues." He added that, due to inadequate training, there was lack of sensitivity on the part of civic bodies to address the animal welfare issues concerning the stray animals (street dogs and cattle) in a humane and scientific manner. Referring to the facilities available at NIAW, Hon'ble Chairman said, "There is a lack of proper training facilities for AWOs at NIAW and this is a serious concern that needs to be addressed." He added that, "an important area of priority for the Board is to increase the membership of the Board so that all States have a Member in the Board to properly facilitate Animal Welfare initiatives".

"The scope of Humane Education Programmes needs to be greatly expanded on an immediate and urgent basis by introducing Animal Welfare as a subject in Schools, Colleges and Universities as well as in Police Training Academies and Teacher Training Institutions." With regard to areas that continue to pose a challenge to the Board, Hon'ble Chairman said, "The problems of inhumane and illegal slaughter without stunning, inhumane culling of animals for disease control, inhumane and illegal transportation of animals and animal sacrifices for religion and faith continue to be areas that pose a strong challenge and appropriate action should be taken by the Ministry on these fronts to minimize cruelty"



Emphasizing on the need for communities and societies to be more sensitive to issues of animal welfare, he said, "the scope of Humane Education Programmes needs to be greatly expanded on an immediate and urgent basis by introducing Animal Welfare as a subject in Schools, Colleges and Universities as well as in Police Training Academies and Teacher Training Institutions."

Stating that there was an urgent need for the Board to increase the staff strength, Hon'ble Chairman said that, "In 1988-89, the total number of employees in AWBI was 21 for 89 AWOs. However, in 2012, the total number of sanctioned posts at AWBI continues to be just 30 to take care of the needs of 2978 AWOs, despite the massive

increase in workload." Similarly, he noted that the population of animals in the country whose welfare needs to be addressed has increased substantially in the past few decades." He added that, "there needs to be a substantial increase in the quantum of grants available to AWOs to effectively promote Animal Welfare initiatives." He observed that another oft recurring problem for the Board was that, "AWBI is wrongly perceived as a Law enforcement agency and receives a large number of complaints from animal welfare activists and the general public to address cruelties to animals." He added that a major challenge that the Board faced was the lack of more stringent Animal Protection Laws to deter potential animal abusers and it was essential that the New Animal Welfare Bill be passed soon.

Adding that human poverty is a great impediment to better animal welfare practices, Hon'ble Chairman also stressed on the need for the public to be better educated and to understand the impact of animal based foods on the environment and as a causative factor in contributing to poverty and malnutrition in the country. He said that the rearing of animals for food contributes nearly 18% of the global greenhouse gas emissions and stated that with the increasing population pressure, it will be very difficult to adequately meet the food needs, through animal based diets, due to the severe strain imposed on agricultural lands as well as due to the emerging water crisis. Hon'ble Chairman ended his address to Hon'ble Minister, MoEF, Smt Jayanti Natarajan Ji and Members of the Board by saying that, "As we enter the Golden Jubilee Year of the Board, there is an urgent need to empower AWBI both financially and with regard to its staff, to address the growing challenges of mananimal conflict so that a strong message can be sent to the society to treat our fellow animals with dignity and respect, since animal welfare initiatives essentially contribute to human welfare."

Special Report – Hon'ble Minister's Visit

Hon'ble Minister, Jayanthi Ji Promises Full Support to AWBI

Hon'ble Minister of Environment and Forests, Smt. Jayanthi Natarajan Ji, now a strong and commited

'Convert to the Cause

of Animal Welfare',

while addressing Members

of the Animal Welfare Board of India on September 10th, 2012



Hon'ble Minister, MoEF, Smt Jayanthi Natarajan Ji addressing Members of the Board during her visit to the Board's Office on September, 10th, 2012.

at the Board's office in Chennai said, "The very first point that I would like to say is that I

cannot overemphasize the importance of our responsibility to protect all animals.

I will do my best to support the extremely laudable work that all of you have undertaken.

I would like to place on record my appreciation of the selfless work that all of you are doing."

"I am filled with pride when I reflect on the fact that India is the only country in the world that has an Animal Welfare Board...thanks to the efforts of our first PM, Pandit Jawaharlal Nehru and Smt Rukmini Devi Arundale. That the office of the Animal Welfare Board of India is located in Chennai, the city that I come from also makes me feel very happy and proud." Stressing about the role that good lawyers and MPs can play in protecting the welfare of animals she said,

"It is absolutely vital that law makers be part of the Board. Issues related to Animal Welfare

must be translated to policy matters in the Parliament. There will be many MPs who can be

motivated to support and take forward the issues relating to animal welfare."

"It is true that we do tend to look at animal welfare issues with a little less importance." In response to Hon'ble Chairman's statement that the Board had been moving from Ministry to Ministry, she said, "It is very strange that you have moved from Ministry to Ministry. In fact, Animal Welfare is linked with almost every department of the Government – with issues related to climate change, the forests and ecosystems....besides, animals make such an immense contribution – from poverty alleviation to human healthcare as in the experiments conducted for human research, the Ministry of Health, the Ministry of Culture, the Ministry of Food Processing... there are so many parts of the Government, where animal welfare issues are intimately connected."

Talking about the release of funds for the Board she said, "I would like to remind all of you that this is the first time that all the funds have been released in September." She added, "We will make sure that the Board's efforts as an advisory body in improving welfare conditions for animals is strengthened. The achievements of the Board are substantial achievements."

Special Report – Hon'ble Minister's Visit

In response to Hon'ble Chairman's appeal that most of the State Animal Welfare Boards are dysfunctional, Hon'ble Minister assured Hon'ble Chairman and Members of the Board saying that, "I will write to the Chief Ministers to ensure that they set up State Animal Welfare Boards, so that all the issues related to animal welfare, cruelty and protection can be effectively addressed and taken care of by each state, at the district level."

Stressing about the need for greater community participation and public awareness, Ms Natarajan said, "In the animal welfare movement, an important interface is public perception. On one hand, animals are revered and worshipped and on the other end, there is cruelty to animals happening on so many levels and on so many fronts. The use of animals in movies – people must be sensitized to prevent cruelty. Human beings must take care to protect the welfare of animals – in poultry farming, in slaughterhouses. In fact, every police station must have animal protection officers at their police station. Besides, general public awareness is very essential if the animal welfare movement is to be successful. One effective way to promote better public awareness would be if Humane Education Programmes are done through celebrities." Referring to effective strategies to get

"Every police station must have animal protection officers at their police station."

financial assistance, Hon'ble Minister added, "Another place to seek support would be corporates. Could you not appeal to corporates to support animal welfare causes as part of their Corporate Social Responsibility (CSR) Programmes?"

She ended her talk by saying that, "In my responsibility as Minister of Environment and Forests,

I want to assure you that we will not stray from our commitment to protect the welfare of

animals. I would like to assure you that I have an open mind and I fully promise you that my

Ministry and I will give full support to the animals and to AWBI." With reference to the plans to celebrate the Board's golden Jubilee year with a Conference, Hon'ble Minister gave Dec 6th as the date for the National Conference on Animal Welfare. Besides the National Conference on Animal Welfare, the Board also plans to conduct four regional Conferences, one each in Guwahati, Hyderabad, Chennai and Bengaluru.

Hon'ble Minister Inaugurates Board's New Facilitation Counter

As a part of Golden Jubilee Celebration of AWBI, Smt. Jayanthi Natarajan, Hon'ble Minister of Environment and Forests, during her visit to the AWBI office at Chennai on 10th September, 2012 also inaugurated a "Facilitation Counter" at the Board's office. The Counter would serve as a one stop facility for getting all kinds of information pertaining to Animal Welfare. The counter will also provide application forms for various grants and will answer any query related to the grants to help the animal welfare organizations. Information and facilitation will also be provided for various



animal welfare training programmes and procedures for application, registration and obtaining the No Objection Certificate (NOC) for films using performing animals. The Facilitation Counter would also have the Board's publications for purchase. \Box

"We must fight against the spirit of unconscious cruelty with which we treat the animals. Animals suffer as much as we do. True humanity does not allow us to impose such sufferings on them. It is our duty to make the whole world recognize it. Until we extend our circle of compassion to all living beings, humanity will not find peace."

– Dr. Albert Schweitzer

Special Report – Hon'ble Minister's Visit

Hon'ble Minister's response: "It has been with us for some time and the matter has been pending and I know we need to take action. I promise to look at the revised draft of the Animal Welfare Act and take action soon."

AWBI News

Questions To Smt Jayanthi Ji

During the Question session with Jayanti Ji, some of the Questions raised by Members were as below:

the laws.



Left to right: Dr. Chinny Krishna, Hon'bleVice-Chairman, AWBI, Smt Norma Alvares, Board Member, AWBI & Maj. Gen. (Retd) Dr. R.M.Kharb, AVSM, Hon'ble Chairman, AWBI.

Another question raised was whether the Ministry can have standing counsels and if standing counsels are used, the lawyers' fees can be substantially reduced.

Hon'ble Minister's response: Once we take a decision on this, there should be no problem in getting the Counsel. The States have highly paid lawyers. We should ensure that there are very senior lawyers taking up the cases.



Shri Guljarilal Soni, Senior Board Member, AWBI appealed to the Hon'ble Minister that the Board's budget should be increased to at least Rs 500 crores.

Board Member, Smt Norma Alvares informed the Hon'ble Minister that there was an urgent need to update

Hon'ble Minister's response: The entire budget for MoEF is just Rs 2000/- crores.



Smt Amala Akkineni, Board Member and Founder of Blue Cross of Hyderabad suggested to Hon'ble Minister that if the fees charged to the people who engage in cruel transportation was increased, that itself would generate a revenue of Rs 2-3 crores for the state. She also



Board Member,Smt Amala Akkineni and Asst Secretary, AWBI, Shri Vinod Kumaar participate in the Board's Meeting

suggested to the Hon'ble Minister that if a tax of one paise / litre of milk was charged and the amount given to AWBI, that could generate a huge amount of revenue for the Board to carry out its animal welfare work. \Box

A Heartfelt Thank you From Dr. Chinny Krishna, Vice-Chairman, AWBI To Hon'ble Minister, MoEF, Smt Jayanthi Ji



Dr. S. Chinny Krishna, Hon'ble Vice-Chairman, AWBI Giving the Vote of Thanks

Dr. Chinny Krishna, Hon'ble Vice-Chairman, AWBI thanked Hon'ble Minister, Smt Jayanthi Natarajan Ji for expressing her concern for the welfare of India's animals and her assurance to address the challenges faced by the Board. He said, "I am delighted to have this opportunity to thank Honble Minister, Smt Jayanti Ji for visiting the Board's office. We are extremely fortunate that Smt Jayanti Ji as the Minister of Environment and Forests is now a strong convert to the cause of Animal Welfare and is actively supporting AWBI's mission to improve the welfare of animals in the country". He expressed great joy that the Board's Golden Jubilee Celebrations were going to be marked with a National Conference on Animal Welfare and the fact that Hon'ble Minister was likely to pass the new Animal Welfare Bill soon.

News

[°] Hon'ble Chairman, AWBI Honoured With Lifetime Achievement Award from IAVMI



Dr. R. Prabakaran, Vice-Chancellor, TANUVAS honouring Maj. Gen. (Retd) Dr. R. M. Kharb, AVSM, Hon'ble Chairman, AWBI with a shawl and the Life Time Achievement Award.



From Left to Right: Dr. V.Purushothaman, Director, CAHS, Thiru Dharmendra Pratap Yadav, IAS, Commissioner, DAH & VS, Dr. R. Prabakaran, Vice-Chancellor, TANUVAS, Maj. Gen. (Retd) Dr. R.M.Kharb, AVSM, Hon'ble Chairman, AWBI, Dr. A.K. Srivastava, Director & Vice-Chancellor, NDRI, Prof P.K. Uppal, Former MD, Director, DBT, Ministry of Science & Technology and Patron, IAVMI.

Chennai: During the 26th Annual Convention of The Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases (IAVMI) and the International Seminar on Future of Livestock Health held from September 6th to 8th, 2012 at TANUVAS, Maj. Gen. (Retd) Dr. R. M. Kharb, AVSM, Hon'ble Chairman, AWBI was honoured with a Lifetime Achievement Award. The Award was conferred on him by the Vice-Chancellor of TANUVAS, Dr. R. Prabakaran and was given to him in recognition of his outstanding contributions to the advancement of Veterinary Microbiology. In his address to the distinguished delegates at the Convention, while thanking IAVMI for the honour, Hon'ble Chairman stressed the importance of giving Animal Welfare the highest concern in all initiatives relating to animal husbandry, improved productivity and economic gain. He said, "The Government of India is a signatory to The Universal Declaration on Animal Welfare. Hence, it is the responsibility of all Veterinarians while framing policies and while advising farmers to emphasize that good animal welfare practices always help to boost animal health, improve productivity and minimize the chances of zoonotic disease outbreaks". □



Maj. Gen. (Retd) Dr. R.M.Kharb, AVSM, Hon'ble Chairman, AWBI addressing the delegates at the IAVMI Convention and International Seminar on Future of Livestock Health.

AN VEGAN SOCIET

Satvik Vegan Festival Celebrated



Byndoor: "Meditation and Veganism are twin remedies for the ailing world", said Mr. Prem Kumar, Vice President, Pyramid Spiritual Societies Movement, Bengaluru after inaugurating a meditation course at Sthitaprajna Vegan Centre, Byndoor, Udupi District, Karnataka on Sunday, August 19, 2012 during the Satvik Indian Vegan Festival-2012 organised by Indian Vegan Society. Satvik Indian Vegan Festival is an annual event at Byndoor where

vegans and non-vegans come forward to celebrate righteousness in a picturesque environment at the footsteps of the Western Ghats. The highlight of this vegan event, where Kumar, Vice-President, Pyramid Spiritual Societies Movement, Bengaluru speaking on the occasion.



IVS Vegan of the Year Award

non-vegans outnumbered vegans by almost 10 times, was the honouring of Ms.Himani Shetty from Mumbai with 'IVS Vegan of the Year' Award. Delivering the 'IVS Annual Lecture' on 'Ahimsa in Practical Life', Mr. K. Shivanand Karanth, Kundapur, renowned columnist with a local newspaper said, "Veganism is the highest form of practising ahimsa and following veganism is the best tribute to mother earth, a human can give." Mr. Patabhiram, Sullia, with his laughter therapy, conducted a marathon mimicry and humour program for energising the afternoon session. To involve the local populace in this peaceful event, a tribal dance was organised. In addition to the large troupe, there were more than 50 people who came from the surrounding villages to complement the 100 strong

community of vegans and vegan enthusiasts, who had travelled from far and wide to witness this celebration of life and taste healthy vegan food. The vegan food included substantial organic and raw components, that were prepared in-house by volunteers and enthusiasts. It was a refreshing and energizing experience for all those who were part of this event. All the participants took home the message of being happy and healthy without harming anyone, including the animals in the friendly environment of Sthitaprajna, vowing to meet again from September 27th to 29th, 2013 in the same place. Shri Shankar Narayan, President of the Indian Vegan Society thanked all the participants for making this beautiful event happen. \Box

New Secretary Joins Board



Smt S. Uma Rani, Secretary, AWBI

Chennai: The Ministry Environment and Forests, Govt. of India has appointed Smt S. Uma Rani as the new Secretary of the Animal Welfare Board of India (AWBI). Smt. S. Uma Rani has joined AWBI on deputation from the Ministry of Defence on September, 28th, 2012. Smt. S.Uma Rani, 48, belongs to Thiruvannamalai District in Tamil Nadu. She has a Masters Degree in Zoology and completed her college education from Ethiraj College for Women, Chennai. She passed the Indian Civil Service Exam in 1991 and joined Central Government Services in 1993 in the Ministry of Defence where she is Deputy Director. Smt. S.Uma Rani, has wide experience in serving in various Central Government Departments like the Ministry of Defence, Coast Guard Regional Headquarters at Chennai and Debts Recovery Tribunal, Coimbatore. She has assured her full support and encouragement

to help Animal Welfare activists, Animal Welfare Organizations and other related institutions to ensure that animals are looked after and their welfare taken care of during her tenure.

Blue Cross of Hyderabad Holds 18th AGM

Hyderabad: Blue Cross of Hyderabad conducted it's 18th AGM on July 29th, 2012 at the Blue Cross of Hyderabad Animal Shelter. The event was attended by Blue Cross members, volunteers, staff and Founder, Blue Cross of Hyderabad, Smt Amala Akkineni. Special Guests of Honour at the function were Principal Secretary, Animal



Cross. 🗖

Husbandry Division, Govt. of Andhra Pradesh, Dr. Manmohan Singh and Former Chief Election Commissioner, Mr. Lyndoh and his wife Mrs. Lyndoh and AWBI India Co-opted Member, Swami Svayam Bhagwandas. Dr. Manmohan Singh appreciated the good

work done by the organization and offered to take up more focused efforts to promote the welfare of animals in the State. After the meeting, participants were taken along a guided tour of Blue

Training Programmes For Better Slaughterhouse Inspections & Management

Hyderabad: In an initiative led by AWBI Board Member, Ms. Amala Akkineni, Founder, Blue Cross of Hyderabad and Swami Swyam Bhagwan Das, Shri N.G Jayasimha, Campaign Manager, Humane Society International was invited by the Principal Secretary to Govt., AH Department to conduct a Training Programme for all the Joint Directors (AH) in charge of district administration, Deputy Directors (AH), Divisional Assistant Directors (AH) and Veterinarians working in the municipal areas (who will be nominated for inspection of slaughter houses in the districts), district level officers of Panchayat Raj (local self-government), Municipal Administration, Pollution control (line departments in the district for carrying out inspection of Slaughter Houses) on the provisions of the Prevention of Cruelty to Animals Act and the Slaughterhouse Rules framed under the Act.

The Training Programme was conducted by Shri N.G. Jayasimha, through video-conferencing in the first week of September, 2012. Talking about the horrible conditions under which animals are slaughtered Jayasimha says, "India has some of the best legislations with regard to animals-but none is ever implemented. Most of the slaughter happens in illegal slaughterhouses, mostly on streets or in a dilapidated building. During transport animals are routinely dragged, beaten and otherwise cruelly and illegally mishandled. Most slaughterhouses investigated had either a veterinarian or a manager who was actively involved in the functioning of the slaughterhouse. Animals are slaughtered in full view of each other, which is illegal, and are not stunned. None of the slaughterhouse workers are suitably trained in either animal welfare or hygiene."

Reporting on the impact of the Training Programme, Jayasimha says, "We helped them draw up an assessment sheet - for both abattoirs and transport inspection – and trained them as to what to look for in a slaughterhouse and legal provisions regarding the transport. This was very well accepted by the Director and Principal Secretary who placed on record his appreciation. Based on our training, he has issued instructions for all districts to conduct audits in ten abattoirs in each district." \Box

Events India for Animals, 2012 Conference and Expo



Event Sponsors

A Well-Fed World GSPCA International Animal Rescue The Marchig Animal Welfare Trust DogStop Pedigree Brilliant Bio Pharma Ltd PAWS Primate Trust India

Programme Outline

Showcase: The State of India's Animals: An orientation to different issues that need immediate attention, and a brief introduction to all major areas of animal protection work in India.

Holy Cow: Issues and Strategies: An introduction to the issues faced by cows and buffaloes used in the dairy industry in India, along with strategies and innovative campaigns to combat these problems.

An Audience With...: A chance to listen to leaders in the animal protection on an international level, followed by Q & A.

Knowledge Sessions: These sessions will be conducted by experts in the respective fields and will give participants an opportunity to enhance their knowledge base as well as skills. With over 24 different topics to choose from, some of the sessions in the Knowledge sessions are listed as below:

| Animals in Laboratories | How to Conduct Investigations | Understanding Cats | | |
|--|---|---|--|--|
| Working with Law Enforcement Officials | Outreach Methods and Developing Individual and Student Activism | Animal Sacrifice & Working with Temple Enforcement | | |
| Effective Lobbying | Humane Education | Disaster Management | | |
| Getting the most from your animal welfare shelters | Basic first aid, rescue and handling / street animal behaviour | Working smart for animals: professionalize your NGO | | |
| Social media and internet activism | Learning from the International Fund for Africa | Improving your adoption programme | | |
| Dealing with the media | Pain management and when to consider euthanasia | Writing and speaking our message | | |
| Improving your ABC Programme | Early Release after ABC Programme | Plastic Cow | | |

Dragon's Den: Five (pre-selected) participants will be given fifteen minutes to present their ideas to a panel of four Judges and a chance to win a cash prize of Rs 30 000/-. Interested? Email <u>ifa@fiapo.org</u> for application details.

Who will specially benefit by participation:

- O Shelter managers
- O Medicine purchasers for large and small animal units
- O Clinic Managers in private sector
- O Veterinary Doctors for small animals
- O Veterinary Doctors for large animals
- O Compounders and other animal care personnel
- O Entrepreneurs in both business and animal charity work who specifically search for innovative products to enhance animal health
- O Leaders in animal sheltering

The Federation of Animal Protection Organisations gives animal protection organisations the chance to get together under a common banner and connect, build and learn from each other. The India for Animals Conference, brings all organisations and activists together at a national level and is a celebration of the animal protection movement across India. <u>Registration Fees</u> (includes food) FIAPO Members – Rs 1000/- Others - Rs 1500/- Fellowship – Rs 500/- For more information about the Conference, check out <u>www.fiapo.org.</u> For various exhibiting opportunities, please contact Mr Arpan Sharma, CEO, FIAPO at 9871877373 / ifa@fiapo.org.

IFA 2012 Fringe events: On the 19th Nov, there's 'Peas vs Pills' Workshop, by Dr. Nandita Shah, and on the 20th and 21st, a workshop on 'Art of Dynamic Presentation' for Animal Advocates by Ms Nandini Gulati.

International News

Triclosan in Anti-bacterial Soaps Linked to Muscle Weakness & Slow Heart Rate

Research led by Prof. Isaac Pessah at the Department of Molecular

Biosciences in the UC Davis School of Veterinary Medicine has found that Triclosan, a common ingredient found in antibacterial soaps, deodorants, mouthwashes and toothpaste can affect muscle contractions at the cellular level. It was found to slow down swimming in fish, reduce



muscle strength in mice and even reduce the contraction of the heart muscle significantly. The chemical is also used in bedding, clothes, carpets, toys and trash bags. For more information, check out the research study published online in the Proceedings of the National Academy of Sciences.

Reference: Gennady Cherednichenko, Rui Zhang, Roger A. Bannister, Valeriy Timofeyev, Ning Li, Erika B. Fritsch, Wei Feng, Genaro C. Barrientos, Nils H. Schebb, Bruce D. Hammock, Kurt G. Beam, Nipavan Chiamvimonvat, and Isaac N. Pessah. Triclosan impairs excitation-contraction coupling and Ca2 dynamics in striated muscle. PNAS, 2012 DOI: 10.1073/pnas.1211314109

New Species of Barbet Discovered In Peru



Two new species of owls - Camiguin Hawk-owl and the Cebu Hawk-owl was discovered in Phillipines by Pam Rasmussen, assistant professor of zoology at the Michigan State University and assistant curator of mammalogy and ornithology at the MSU Museum. The

discovery has been reported in Forktail, the Journal of Asian Ornithology. The songs of both the species of owls can be heard on AvoCet.

A colourful new species of barbet, named the Sira Barbet, *Capito fitzpatricki* has been discovered in the forests of Peru in South America by a team of ornithologists from Cornell University led by Michael G. Harvey and accompanied by Daniel Cáceres from the



Universidad Nacional de San Agustín in Arequipa, Peru.

References:

Japan to Strengthen Laws on Sale of Pets

A decision was taken in the Japanese parliament to strengthen laws pertaining to the purchase of newborn animals and sale of animals online. Under the revised laws, the sale of cats and dogs less than 56 days will be prohibited. However, the law will be implemented in phases. \Box

Source: http://www.japantoday.com/category/national/view/animal-welfare-laws-tightened-to-regulate-buying-and-selling-of-pets

Australia to Revise Animal Welfare Act

The Australian Government has decided to review the currently prevalent Animal Welfare Act with the help of the Animal Welfare Advisory Committee and the Department of Primary Industries, Parks, Water and Environment (DPIPWE). To know more about Australia's Animal Welfare Act and to propose changes in the Act, check out the DPIPWE website. Feedback from the public will be received until 16 November 2012.

Source:<u>www.farmpoint.tas.gov.au/farmpoint.nsf/advisorie</u> s/CB034AF605B9A975CA257A290016FEB2

Video-Conference for Schools on World Rabies Day

Avonworth High School in Pittsburgh, Pennsylvania has taken the lead in initiating awareness and educating school children about rabies through an international multi-city, video-conference on September, 28th, World Rabies Day.

Schools from Texas, Pittsburgh, India and N. Ireland participated in the Programme. Dr Chinny Krishna, Hon'ble Vice-Chairman, AWBI and Pennsylvania State Veterinarian, Dr. Erin Moore made the presentation about rabies while Mr. Dave Crawley moderated the session. Additionally, an Emmy nominated film titled, 'Dogs of India' was screened. The film has been produced by Mr. Dave

Crawley and Dr. Chinny Krishna, with video-photography by Ms. Laurel Herman. To know more, check out the YouTube Video or check out <u>www.avonworth.k12.pa.us/news.cfm?story=49160</u>. \Rightarrow

^{1.}P. C. Rasmussen, D. N. S. Allen, N. J. Collar, B. Demeulemeester, R. O. Hutchinson, P. G. C. Jakosalem, R. S. Kennedy, F. R. Lambert & L. M. Paguntalan. Vocal divergence and new species in the Philippine Hawk Owl Ninox philippensis complex. Forktail, 28 (2012): 1%u201320 2. Glenn F. Seeholzer, Benjamin M. Winger, Michael G. Harvey, Daniel Cáceres A. and Jason D. Weckstein. A new species of barbet (Capitonidae:Capito) from the Cerros del Sira, Ucayali, Peru. The Auk, 2012 DOI: 10.1525/auk.2012.11250

Thiel Foundation Funds Research on 3D-Printed Meat



The Thiel Foundation has awarded \$350.000 through Breakout Labs to Gabor and Andras Forgacs, Co-founders of Modern Meadows. Missouri based start-up to develop a model of synthetic meat that will be made with 3D bioprinting. In bio-printing, tissues and organ

Image source: IMSI Cliparts

structures are made using a computer to guide in delivering the cells. Research on this front may be a major breakthrough in the field and by refining this technology, it may be possible to create large chunks of meat, with exactly the texture and colour that consumers prefer. For now, using a mixture of cells and bio-printing, the company would attempt to print out small pieces of meat. Besides meat, Modern Meadows plans to apply the principle of bio-printing to produce a range of materials, including leather.

Besides Forgacs, Mark Post from the Maastricht University plans to launch a very expensive tissue based hamburger later this year. Considering that over 60 billion land mammals are killed every year for meat, without counting the billions of fish and other marine creatures consumed, the impact of artificial block printed meat available by the tons could well be one of the 21st century's biggest breakthroughs. Recent research at the University of Oxford shows that tissue culture meat, gives out 78-96% lesser greenhouse gas emissions than meat obtained by killing sentient living beings. Besides, with 99% lower land use and 82-96% lower water use, synthetic meat, if made cost-efficient and easy to produce in large volumes quickly, could be a great substitute for meat eaters.

Source:1.http://www.smartplanet.com/blog/smart-takes/investing-in-3d-printedmeat/28476 2.

2. www.breakoutlabs.org/recipients.html

3.http://www.businesswire.com/news/home/20120815005225/en/Thiel-Foundation %E2%80%99s-Breakout-Labs-Announces-Newest-Grants

Important Dates in October

October 2nd – Gandhi Jayanti October 4th – World Animal Welfare Day First Week of October – Joy of Giving Week & International Vegetarian Week. Pls see www.joyofgivingweek.ning.com & www.vegetarianweek.org. □

Dogs At Work!

A Great Wellness Booster!



In a study led by Dr. Randolph T. Barker, Ph.D., Professor of Management at the Virginia Commonwealth University School of Business, it has been noted that the presence of dogs at the workplace helps to reduce stress and makes work more satisfying for employees. The study was conducted by Barker et al at Replacements Ltd, a company located in North Carolina, with nearly 550 employees and about 20 to 30 dogs on the company premises each day. In the study conducted for a week no significant difference was seen between stress hormone levels measured in the morning.

However, in those employees whose dogs were there at the work place, it was seen that self-reported levels of stress levels was reduced, while it was increased in the employees who did not bring their dogs to work. The study has been published in the International Journal of Workplace Health. In a review of the paper on the website of the International Journal of Workplace Health it is stated that, "this paper provides the first quantitative exploratory study of the effects of pet dogs in the workplace setting on employee stress and perceptions of satisfaction, support and commitment."

Reference: Randolph T. Barker, Janet S. Knisely, Sandra B. Barker, Rachel K. Cobb, Christine M. Schubert, (2012) "Preliminary investigation of employee's dog presence on stress and organizational perceptions", International Journal of Workplace Health Management, Vol. 5 Iss: 1, pp.15 – 30

Pets Protect Babies



Research led by Eija Bergroth and colleagues at the Kuopio University Hospital, Kuopio, Finland gives definitive evidence that when babies are exposed to pet dogs and cats during the first twelve months of their life, they are better protected from respiratory tract infections. The investigators followed up 397 children born in Finland between 2002 and 2005. It was noted that pets, especially dogs, had strong protective influence on the health of the children. In homes with dogs that stayed indoors, the risk of the children suffering a respiratory infection or ear infection was significantly lower, in contrast to homes with no pets. It was also noted that in homes with pets, the children had fewer bouts of respiratory infections and ear infections, and with the condition being much milder and needing a shorter course of antibiotics, in contrast to children who had no contact with dogs or cats. Quite significantly, it was observed that children who had no pets were most at risk of suffering a respiratory infection.

Reference: Eija Bergroth, MD, Sami Remes, MD, PhD, Juha Pekkanen, MD, PhD, Timo Kauppila, MSc, Gisela Büchele, PhD, and Leea Keski-Nisula, MD, PhD. <u>"Respiratory Tract Illnesses During the First Year of Life: Effect of Dog and Cat Contacts.</u>Pediatrics July 2012. doi: 10.1542/peds.2011-2825

An HSI Report: The Welfare of Animals in the Egg Industry



Image source: Humane Society International

Abstract

Billions of chickens in the egg industry suffer from poor welfare throughout their lives. Male chicks, considered a by-product of commercial hatcheries, are killed soon after they hatch. The females are typically beak-trimmed, usually with a hot blade, to prevent them from developing the abnormal pecking behaviours that manifest in substandard environments. The overwhelming majority of hens are then confined in barren battery cages, enclosures so small that the birds are unable even to spread their wings without touching the cage sides or other hens. Battery cages prevent nearly all normal behaviour, including nesting, perching, and dust-bathing, all of which are critically important to the hen, as well as deny the birds normal movement to such an extent that the hens may suffer from physical ailments, including osteoporosis and reproductive and liver problems. Once their productivity wanes, typically after 1-2 years, the hens are "depopulated," and many experience broken

bones as they are

removed from the cages. The birds are either killed by gassing on the farm or after long-distance transport to a slaughter plant, where they experience further stress and trauma associated with shackling, electrical water-bath stunning, and throatcutting. Throughout the commercial egg industry, the welfare of birds is severely impaired.

Introduction

Globally in 2009, nearly 1.2 trillion table eggs were produced by approximately 6.3 billion hens¹ There are no reliable assessments of the percentage of laying hens confined in battery cages worldwide. The International Egg Commission (IEC) estimates that 85% egg production comes from caged systems.² However this figure does not always include backyard egg production,³ which can be significant in many developing countries.⁴ The IEC reports 100% percent of commercial production in India and Brazil is caged.⁵ However, a number of retail outlets in both countries have adopted cage-free procurement policies, and purchase their eggs exclusively from commercial-scale cage-free egg producers.^{6,7,8} Still, it is clear that an increasing number of producers around the world are turning to intensive, industrial farm animal production (IFAP) systems, which now account for about two-thirds of egg and poultry production.⁹ The most commonly used cages hold 5-10 birds.¹⁰ A typical egg farm contains thousands of cages, lined in multiple rows, stacked 3-5 tiers high. Industry guidelines stipulate

Globally in 2009, nearly 1.2 trillion table eggs were produced by approximately 6.3 billion hens. Male chicks are considered a by-product of egg production and are customarily killed upon hatching. Methods of chick disposal include maceration (wherein live, fully conscious, and unanesthetized chicks are inserted into high-speed grinders); exposure to carbon dioxide, argon, or a mixture of the two gases; or by use of a high-speed vacuum system that sucks chicks through a series of pipes to an electrified "kill plate"

that each caged hen may be afforded 432.3 cm² (67 in²) per bird,^{11,12} an amount of floor space equivalent to less than a single sheet of letter-sized paper.

Hatching

Chickens destined for the egg industry are artificially incubated and hatched by the thousands at commercial hatcheries. Male chicks will not mature to lay eggs and since they are not selectively bred for rapid growth and increased breast muscle (meat) as those in the broiler chicken meat industry, there is no market demand for them. As such, male chicks are considered a byproduct of egg production and are customarily killed upon hatching. In the United States, 260 million chicks are killed by the commercial egg industry annually.¹³ Methods of chick disposal include maceration (wherein live, fully conscious, and anaesthetized chicks are inserted into high-speed grinders); exposure to carbon dioxide, argon, or a mixture of the two gases; or by use of a high-speed

vacuum system that sucks chicks through a series of pipes to an electrified "kill plate."^{14,15,16} Although there is little published research establishing that the vacuum system is effective and it is highly likely that the chicks experience considerable distress before they are killed, the majority of male chicks die by this method.¹⁷

Beak-Trimming

Many laying hens are beak-trimmed as young chicks¹⁸ in order to prevent potential outbreaks of injurious feather-pecking and cannibalistic behaviour that can result from such intensive confinement in barren conditions, as well as to reduce feed wastage of adult birds. Beak-trimming generally involves removing 1/3rd-1/2 of the beak tip,^{19,20} but in some cases, up to 2/3^{rd 21} may be cut off.

The most common commercial method uses a heated blade both to cut and cauterize the beak tissue,^{22,23} but newer technologies include infra-red energy and laser procedures.^{24,25,26} Beak-trimming using a hot blade causes tissue damage and nerve injury, including open wounds and bleeding, which results in inflammation, and acute and possibly chronic pain.^{27,28,29,30,31,32} Beak amputation can also result in the formation of a painful neuroma, a tangled nerve mass, in the healed stump of the beak,^{33,34,35} particularly if the procedure is delayed until the birds are older than five weeks of age or if a large, critical amount 2/3rd of the beak is removed.^{36,37,38} The beak is a highly innervated, complex organ containing free nerve endings that serve as nociceptors (receptors for painful or injurious stimuli) and sensory receptors that are concentrated in the area around the tip of the beak, innervated by branches from the trigeminal nerve.^{39,40} Hence, beak-trimming removes many of the receptors important for touch, taste, pain, and temperature perception.

Chickens use their beaks to explore their surroundings. The beak is their primary means of touching and feeling, as well as picking up and manipulating objects, and chickens use their beaks in much the same way that we use our hands.⁴¹ Studies have shown that because birds need to adapt to a new beak form after this amputation procedure, their ability to consume feed is impaired following beak-trimming.⁴² Beak-trimmed chicks also exhibit difficulty in grasping and swallowing feed.⁴³ Ian Duncan, Emeritus Chair in Animal Welfare at the University of Guelph, has asserted that "it is possible to keep hens

"Beak-trimming has been banned or is being phased out in some European countries including England, Norway, Finland, and Sweden, due to the pain the mutilation causes and because adjustments to the environment and management practices can be used to mitigate the risks of injurious pecking and cannibalism outbreaks."

without de-beaking them,"⁴⁴ and animal scientists David Fraser, Joy Mench, and Suzanne Millman have referred to practices such as beak-trimming as "stop-gap measures masking basic inadequacies in environment or management."⁴⁵ Many factors present in today's commercial egg production industry heighten the risk of injurious pecking behaviour, but important among these is the lack of environmental stimulation in monotonous, barren environments that restrict or severely limit important behaviour, such as natural foraging (ground-pecking) activities.^{46,47,48,49} Beak-trimming has been banned or is being phased out in some European countries including England, Norway, Finland, and Sweden,^{50,51} due to the pain the mutilation causes and because adjustments to the environment and management practices can be used to mitigate the risks of injurious pecking and cannibalism outbreaks.

Behavioural Restriction*

Hens in battery cages cannot perform many of their important, natural behaviour, including nesting, dust-bathing, perching, and foraging. They are also so severely restricted in the movements they are able to perform that they suffer from physical abnormalities due to lack of exercise. * This section is drawn from "An HSUS Report: A Comparison of the Welfare of Hens in Battery Cages and Alternative Systems," prepared by Sara Shields, Ph.D., and Ian J.H. Duncan, Ph.D. For more information, see the full report online at www.hsus.org/web-files/PDF/farm/hsus-a-comparison-of-the-welfare-of-hens-in-battery-cages-and- alternative-systems.pdf.



Image source: Humane Society International

Nesting

Nesting behaviour is so important to the laying hen that it is often used as a prime example of a behavioural need.⁵² Under natural conditions, approximately 90 minutes before oviposition (egg laying), a hen locates a remote, private place in which she carefully scrapes out a shallow hollow in the ground and builds a nest.⁵³ Very similar behaviour can be seen in non-cage husbandry systems for hens.^{54,55} Nesting behaviour is triggered internally with a sudden rise in progesterone against a background of fairly high oestrogen levels. This hormonal fluctuation, associated with ovulation, then results in nesting behaviour approximately 24 hours later.^{56,57}

The internal, biological signals to perform nest-site selection and nesting behaviour occur no matter what the external environment.⁵⁸ Studies have shown that hens are highly motivated to gain access to a nest site when they are about to lay an egg.^{59,60}

Caged hens prior to ovi-position are restless, show stereotypic pacing and escape behaviour, or perform "vacuum" nesting activity, the expression of the motions of building a nest in the absence of appropriate nesting materials. Decades of scientific evidence suggest that hens are frustrated and distressed, and that they suffer in battery cages because there is no outlet for nesting behaviour.^{61,62,63,64,65,66,67}

Dustbathing

The absence of loose litter in a battery-cage environment is also behaviourally restrictive as hens are prevented from performing normal dustbathing behaviour. Dustbathing keeps chickens' feathers and skin in healthy condition. Given access to dry, friable substrate, such as dirt, wood shavings, or peat, hens would normally dustbathe approximately once every other day. During a dustbath, the hen crouches, lies in, and rubs dust through her feathers before standing and shaking off the loose particles. The best experimental Farm Animal Welfare evidence suggests that the function of dustbathing is to balance lipid levels in the feathers.^{68,69,70} However, dust-bathing is caused by a variety of factors, some of which are external ⁷¹ and others internal.^{72,73}

Light and heat trigger dustbathing, as does the presence of a friable, dusty substrate, but even when deprived of these normal eliciting stimuli, hens in battery cages will still try to dust-bathe on the wire floor. Peripheral factors, emanating from the feathers (including ectoparasites), seem to be unimportant since even featherless chickens will dustbathe.⁷⁴ Although there has been a report of dustbathing deprivation leading to stress,⁷⁵ others have suggested that dustbathing is not driven by a need, but is a pleasurable activity.⁷⁶ This does not lessen its importance, since good welfare is dependent on both an absence of suffering and a presence of pleasure.⁷⁷

Perching and Roosting

Barren with wire mesh flooring, conventional battery cages also prevent hens from perching and roosting. Perching is another natural behaviour of the hen. When given the opportunity, hens will normally roost high in the trees at night. The scientific literature suggests that the foot of a hen is "anatomically adapted to close around a perch"^{78,79}—that is, their feet evolved to clutch onto branches. Perch use is important for maintaining bone volume and bone strength.^{80,81,82} Perches can also serve as refuges for hens to avoid injury from more aggressive hens⁸³ and will reduce agonistic interactions.⁸⁴

In a naturalistic setting, roosting behaviour is thought to function in protecting chickens from predation at night, but evolutionary history continues to drive the hen's need to perform the behaviour, even in the industrialized production environment. When perches

are provided in cages, hens may spend 25-41% of day time on them.^{85,86,87} though this may be the birds' method of utilizing the extra space.⁸⁸ Hens immediately begin to use perches when the lights go off at night, and in one study, within 10 minutes, more than 90% of all hens were found on perches.⁸⁹ When perch space is limited, hens will crowd together for roosting space at night.⁹⁰ In motivational analysis experiments, hens show behaviour indicative of frustration when thwarted from accessing a perch.⁹¹ They are also willing to push through an increasingly heavily weighted door for perch access.⁹² Thus, many studies conclude that hens are highly motivated to perch.^{93,94,95}

Scratching and Foraging

The wire floor of a battery cage also deprives hens of the opportunity to express normal foraging and scratching behaviour. Hens are behaviourally adapted to engage in these activities, which would normally take place in loose, varied ground cover. The birds scratch the earth in search of food and as a means of exploring the environment. Studies have reported that domestic fowls spend more than 50% of their active time foraging.^{96,97} Battery-caged hens are fed a concentrated diet, yet, like other animals in captivity,⁹⁸ their natural urge to forage remains strong despite the presence of a complete diet fed ad libitum. Studies have shown that

"Hens immediately begin to use perches when the lights go off at night, and in one study, within 10 minutes, more than 90% of all hens were found on perches"

hens will choose to forage for feed on the ground in loose substrate rather than eat identical food freely available in a feeder.^{99,100} The lack of appropriate foraging substrate may lead to redirected pecking and development of abnormal feather-pecking behaviour.¹⁰¹

Exercising

Hens in cages are so intensively confined that they have no opportunity to exercise and are not exposed to the normal range of physical forces that structure their bones. The scientific literature provides ample evidence that restriction of normal movement patterns to the extent found in cages causes physical harm in the form of bone weakness. Dynamic loading is a process that occurs during normal movements and causes stresses and strains to bone and muscle that keep the skeletal system healthy. The lack of exercise in cages leads to bone fragility and impaired bone strength.^{102,103,104,105} While all hens selectively bred for egg production are prone to skeletal weakness due to osteoporosis, caged hens are more prone to the disease due to lack of exercise. Several studies have compared the bone strength of caged hens to those in perchery and deep-litter systems. Findings conclude a very significant reduction in bone strength in the birds in cages.^{106,107,108} This problem is so severe that in one study, 24% of birds removed from their cages at the end of the laying period suffered from broken bones.¹⁰⁹

Preference testing has demonstrated that hens do prefer more space than is typically allotted to them in a conventional battery cage and that when given the opportunity to choose between enclosures that differ in size, they will generally choose the larger enclosure.^{110,111,112,113,114} Preference tests have also demonstrated that space per se may not be as important as access to other resources, such as outdoor access or a littered or grass floor.^{115,116,117} Additionally, small spaces may temporarily be preferred for particular activities, such as nesting.¹¹⁸

Investigation – Poultry Industry

Engaging in Comfort Behaviour

Many studies have shown that comfort behaviour, such as stretching, wing-flapping, body-shaking, and preening, are reduced or adversely affected in some way by the battery-cage environment.^{119,120,121,122} These types of behaviour are important for body maintenance and care of the feathers. The social spacing in a typical battery cage is restrictive to the point that hens may perceive their environment as being too small to engage in comfort behaviour. Therefore, even if it is physically possible to perform these simple movements, they may not.

Exploring

Hens are naturally inquisitive, curious animals. Scientists have argued that exploratory behaviour is important to animals on several grounds: Exploration satisfies the motivation to acquire information about the surrounding environment, creates agency and competency, and is also an end in itself.^{123,124,125} Some have further argued that situations that deny environmental challenge (because they are barren and devoid of natural stimuli) deprive animals of "the very core on which their physical existence is based, namely the ability to act."¹²⁶ Exploratory behaviour may be independent of goal-directed behaviour (e.g., searching for a suitable nest site or foraging for food), as chickens continue to display exploratory behaviour even when the functional consequences of these behaviours (e.g., nest sites and nutritious food) are present.¹²⁷ Exploratory behaviour is likely a

behavioural need.¹²⁸

The barren, restrictive environments of battery cages are detrimental to the psychological well-being of an animal. When environments are predictable, monotonous, and unchanging, they do not offer the degree of stimulation or opportunity for choice that would be found in natural environments.¹²⁹ Scientists have suggested that environmental challenge is an integral part of animal well-being and that barren environments lacking challenge and stifling exploration engender apathy, frustration, and boredom.^{130,131}

Disease

Today's laying hen, selectively bred for high egg production, produces more than 250 eggs annually,¹³² compared to 100 eggs per year a century ago.¹³³ The red jungle fowl, the presumed wild ancestor of today's commercial breeds, lays only 10-15 eggs annually.¹³⁴ The unnaturally high rate of lay of commercially raised egg-laying hens, sustained for a year or more, takes a toll on the health of the hen and can lead to abnormalities of the reproductive tract and metabolic disorders such as osteoporosis and accompanying bone weakness. As caged hens are unable to exercise, problems with skeletal fragility are exacerbated, and the birds may also suffer from cage layer fatigue and liver problems.

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Reproductive Problems

Consumer demand is greatest for the extra-large and large egg sizes.¹³⁵ The production of these eggs by small birds is one factor that can lead to cloacal prolapse, a condition in which the outer end of the reproductive tract fails to retract following oviposition.^{136,137} Normally, the shell gland (the lower part of the hen's reproductive tract, the oviduct) is momentarily everted. However, sometimes the oviduct does not retract immediately after the egg has been laid, leaving a small portion to rest outside of the cloacal opening. The prolapsed part of the oviduct can become pecked at by cage-mates, leading to haemorrhagess, infection, cannibalism, and possibly even death.^{138,139} The provision of a nest box, as is practised in non-cage housing systems, minimizes visibility of the cloaca during oviposition, reducing the likelihood that laying hens become victims of cloacal cannibalism.¹⁴⁰ Tumours of the oviduct can also be a problem for laying hens selectively bred for high egg production. Adenomas (benign glandular tumours) and adenocarcinomas (malignant glandular tumours) are commonly found in commercial laying hens, possibly due to prolonged exposure of the oviduct to steroid sex hormones controlling egg production.¹⁴¹

Osteoporosis

Bone is the metabolic reservoir for calcium used in egg shell production.¹⁴² The calcium requirement for hens' extremely high rate of lay is immense, and moving calcium from bone to egg shell leaves the birds prone to osteoporosis, subsequent bone fragility, and bone fractures. Osteoporosis due to bone mineral depletion is exacerbated by the inability to exercise in a cage. One study comparing different housing systems found that, on average, caged hens made stepping motions 72 times each hour, compared to 208 times for uncaged birds in a perchery system. Similarly, wing movements were almost non-existent in birds confined in cages compared to those reared in the perchery.¹⁴³ Studies have demonstrated that restriction of movement, especially the thwarting of normal behaviour such as stepping and wing-flapping, is the primary cause of bone fragility for laying hens^{144,145} and that exercise improves bone strength.¹⁴⁶ Many studies have found that alternative, cage-free housing systems lead to improved bone strength.^{147,148,149,150,151,152} Osteoporosis leaves the laying hen's fragile skeletal system prone to bone fractures. The Scientific Panel on Animal Health and Animal Welfare (please refer to http://ec.europa.eu/food/committees/scientific/index_en.htm.), an independent body that provided scientific advice to the European Commission, noted that the prevalence of bone fractures that hens sustain during the laying period appears to be increasing.¹⁵³ Studies conducted during the 1990s estimated that the incidence of bone fractures for caged laying hens

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was 0-15%, ^{154,155,156} while more recent studies report 11-26%. ^{157,158} In a study published in 2003, bone fractures were the main cause of mortality in caged hens. ¹⁵⁹ Hens are also more prone to bone breakage during depopulation, when they are removed from their cages at the end of their productive life. A 2005 study reported that nearly 25% of caged hens suffered broken bones during removal from cages. ¹⁶⁰ Early studies from 1989 and 1990 report similar to slightly lower rates of newly broken bones in hens depopulated at the end of the laying period, with estimates of 16-24%. ^{161,162} If hens are transported, unloaded, and shackled for slaughter, the proportion of birds with broken bones increases, and studies have reported that approximately 30% of hens have new bone fractures following this process. ^{163,164}

Fatty Liver Haemorrhagic Syndrome (FLHS)

FHLS is characterized by excessive deposits of fat in the hen's liver and abdomen. The liver softens and becomes more easily damaged; if the fat oxidizes, blood vessels in the liver may rupture, resulting in massive bleeding and death.^{165,166} Caged laying hens on high-energy diets are the most frequently affected by FLHS,^{167,168} which is a major cause of mortality in commercial flocks.¹⁶⁹ Numerous sources suggest that restriction of movement and lack of exercise, inherent in battery-cage systems, are factors that predispose the birds to this disease.^{170,171,172,173}

Cage Layer Fatigue

Cage layer fatigue is "virtually unheard of" in laying hens who are not raised in cages. First identified when flocks were moved into cages during the advent of intensive egg farming in the 1950s, the disease continues to be a "major issue"¹⁷⁴ within the industry. Cage layer fatigue is related to osteoporosis in that it is a consequence of skeletal depletion due to high, sustained egg output.¹⁷⁵ The skeletal system of hens suffering from the disease can become so weak that the birds become paralysed. Affected hens may have fractured thoracic vertebrae associated with compression and degeneration of the spinal cord.¹⁷⁶ However, if they are removed from their cages and allowed to walk normally on the floor (i.e., if they are allowed to exercise) and are given feed and water, some may recover spontaneously.^{177,178,179} Unattended birds will die from dehydration and starvation in their cages.^{180,181}

Injurious Pecking

Feather pecking is an abnormal behaviour that is a continuing welfare problem in poultry production,¹⁸² because it causes pain from having feathers pulled,¹⁸³ results in body heat loss,^{184,185} and can expose bare skin to injury. Severe feather-pecking can lead to cannibalism and high mortality. Feather-pecking is influenced by many aspects of the environment and the genetic background of the hen, and is notoriously unpredictable.¹⁸⁶ However, crowding, barren environments, and lack of loose litter or other foraging materials are important contributing factors to injurious pecking.^{187,188,189,190,191,192} Some hen strains are more likely to develop the behaviour than others, in particular, the medium-heavy brown hybrid birds.¹⁹³ Most egg producers beak-trim birds, as discussed above, to help reduce injury and mortality, but the mutilation impairs welfare, presenting a challenge best articulated by Duncan: Neural and behavioural evidence suggests that beak trimming reduces welfare through causing both acute and chronic pain. The problem is that beak trimming is carried out for the very good reason of preventing or controlling feather pecking and cannibalism, which can themselves cause great suffering. Faced with this dilemma, what are producers to do? If they do not trim beaks, then feather pecking and cannibalism may cause enormous suffering. If they do trim beaks by conventional methods, the birds will suffer from acute and chronic pain...It is known that feather pecking has hereditary characteristics...and that its incidence may have been increased by unintentional genetic selection....It therefore seems likely that the long-term solution to this problem will be a genetic

one...Chopping off parts of young animals in order to prevent future welfare problems is a very crude solution.¹⁹⁴

Forced Molting

Chickens molt their plumage annually in a process of feather loss and regrowth that can take several months. During the natural molting process, hens may go out of lay completely or lay only very few eggs. Thus, depending on economic factors affecting the marketplace, such as egg price, hens used for commercial egg production are either depopulated and replaced with younger pullets after a year, or they may be kept for a second egg-laying cycle following a forced molt. Force-molting speeds up the natural molt process and causes a temporary regression of the reproductive tract and cessation of egglaying.¹⁹⁵ In starvation force molt regimes, feed is withheld for up to 14 days¹⁹⁶ and may be combined with 1-2 days of water deprivation,^{197,198} along with a decrease in daylight hours. During a forced molt, hens may lose up to 35% of their body weight.¹⁹⁹ When feed is removed, hens exhibit a classical physiological stress response, as well as signs of "extreme distress such as increased aggression and the formation of stereotyped pacing."^{200,201} "In 2011, The Animal Welfare Board of India issued an order to the egg industry, banning starvation force molt regimes, noting that the practice is in violation of India's Prevention of Cruelty to Animals Act of 1960. Force molting by total feed withdrawal is no longer permitted in Australia and Europe,²⁰⁶ and is uncommon in the United States".

The practice of force molting by feed withdrawal has been widely questioned²⁰² throughout the world.²⁰³ Duncan considers the practice "barbaric," as it can double the mortality of the flock, and leads to "great suffering."²⁰⁴ In 2011, The Animal Welfare Board of India issued an order to the egg industry, banning starvation force molt regimes, noting that the practice is in violation of India's

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Prevention of Cruelty to Animals Act of 1960.²⁰⁵ Force molting by total feed withdrawal is no longer permitted in Australia and Europe,²⁰⁶ and is uncommon in the United States. Over 80% of all U.S. produced eggs meet the United Egg Producers (UEP) guidelines for animal management, and these standards require that feed is provided during the molt using a specialized diet.²⁰⁷ Non-feed withdrawal force-molt diets use low-nutrient feeds made largely from insoluble plant fibers²⁰⁸ or from bulking agents such as corn, wheat middlings, or alfalfa.^{209,210,211}

Despite recognition by the scientific community that force molting by starvation is detrimental to animal welfare, and the fact that research and implementation of alternatives have eliminated the practice of starving birds on many farms, feed withdrawal to induce a molt is still common in many countries. For example, in Brazil force molting is widely used on commercial farms because depriving hens of feed is cost efficient.²¹² Feed-withdrawal forced molting is also practised in many other countries²¹³ including India.²¹⁴.

There are serious public health implications associated with this practice. Under "extreme distress"²¹⁵ and weakened from hunger, force-molted birds are extremely susceptible to infection. The industry has known for well over a decade that forced starvation molting dramatically increases the risk of hens laying *Salmonella*-infected eggs.²¹⁶ Normally it may take 56,000 *Salmonella*

"Normally it may take 56,000 Salmonella bacteria to overcome a bird's immune system. Starvation molting makes hens so immunocompromised that less than 10 bacteria —rather than 56,000—can trigger infection".

bacteria to overcome a bird's immune system. Starvation molting makes hens so immuno-compromised that less than 10 bacteria rather than 56,000—can trigger infection.²¹⁷ Molted hens then shed significantly more bacteria²¹⁸ and are twice as likely to lay Salmonella-infected eggs. ²¹⁹ Given the fact that this practice can increase *Salmonella* susceptibility by a factor of 10,000, why does the industry continue to put consumers at risk for a potentially fatal infection?

Catching, Transport, and Slaughter

Although bred for high egg output, laying hens cannot sustain metabolically taxing levels of egg production indefinitely. Chickens have a natural lifespan of 5-8 years and can live up to 30 years.²²¹ However, after 1-2 years of intense egg production, so-called "spent" hens are killed on-site or transported to slaughter plants. For flocks to be transported

| | spent hers are kined on-site of transported to staughter plants. For mocks to be transported |
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| "Chickens have a natural | to slaughter, teams of catchers manually remove the birds from cages, typically grabbing hens |
| Chickens have a hatara | by one or both legs, pulling them from cages, and carrying 2-4 birds upside-down per hand. |
| lifespan of 5-8 years and can | Birds may be inadvertently hit against the cage opening, feed trough, or other objects as they |
| mespan of e o years and can | are removed. On average, hens removed from battery cages are passed from handlers 3-5 |
| live up to 30 years. | times before they are crated and loaded onto trucks. ^{222,223,224,225} |
| nve up to eo yearst | |
| However, after 1-2 years of | This process is known to be stressful for chickens, as there is a rise in corticosterone levels |
| | when birds are handled, crated, and transported. ^{226,227,228} The battery cage is poorly designed |
| intense egg production, | |
| | for removal of hens, and limbs and appendages may be torn when the birds are taken out of |
| so-called "spent" hens are | the enclosure. Duncan states that "the combination of these three factors—fragile skeleton, |
| | poorly designed cage, and low value—results in an unacceptably high injury level" during |
| killed on-site or transported | removal from the cage for transport. ²²⁹ Bones weakened by osteoporosis and inactivity are |
| | prone to painful bone fractures and skeletal trauma. ^{230,231,232,233,234,235} Freshly broken bones |
| to slaughter plants". | occur often, mainly as a consequence of human handling. ²³⁶ In one study, 29% of spent hens |
| | had broken bones after transport and shackling for slaughter ²³⁷ |

Slaughter practices, particularly for spent hens, vary between countries and within countries, depending on the size and scale of production. Some hens may be killed on the farm either for food production or for disposal once egg production wanes.²³⁸ Small batches of birds may be killed using one of several methods: Commonly, birds are held in a bleeding cone while the throat is cut.²³⁹

In another method, the butcher will "wring the bird's neck"—that is, swing the bird in a 360-degree circle by its head until dead.²⁴⁰ A further technique is to break the bird's neck by holding both legs of the bird in one hand and the neck in the other, and then stretching the chicken while bending the head backwards until the neck is dislocated.²⁴¹ Some hens are transported to a live market for sale instead of being slaughtered on the farm or in an automated, commercial-scale processing facility. This occurs where local tradition creates a demand for freshly killed birds.²⁴² In live-animal markets (wet markets), birds are held in small stacked cages²⁴³ or tethered.²⁴⁴ When purchased, the birds may be killed on site or taken home to be slaughtered.²⁴⁵ In Hong Kong, for example, 100,000 live birds are traded in wet markets per day.²⁴⁶

Where poultry slaughter is automated, hens may be stunned before slaughter using an electrified water-bath system. In these largescale, commercial operations, chickens are hung up-side down in shackles and conveyed through an electrified water-bath. Their heads make contact with the charged water and current runs through their body to their feet in the shackles, immobilizing them and

they are next conveyed past an automated knife. Their throat is cut, and they die from exsanguination (blood loss).²⁴⁷ At medium-scale operations, where 1-50 birds are slaughtered per day, chickens may be stunned before being placed up-side down into cone-

shaped holders. In "bleeding cones" the head of the bird is pulled downward, through the bottom end, and the throat is exposed for neck cutting while the cone restrains the bird. In some slaughter operations, birds may be electrically stunned with a hand held stunner only after being placed into bleeding cones.²⁴⁸ In certain cultures it is not permissible to stun an animal before killing. The live bird is suspended, killed, and bled by a throat cut.²⁴⁹

Conclusion

The situation for the vast majority of hens in the commercial egg industry is dire, but movement to higher welfare production methods is occurring. Alternative, cage-free housing, such as aviaries and percheries, have greater potential to provide higher welfare of hens, and the egg industry is increasingly employing these production systems. Voters are also calling for improvements. In November 2008, the U.S. State of California passed by a nearly two-to-one margin a state-wide ballot measure that disallows battery cages for egg-laying hens, as well as crates for gestating pigs and calves raised for veal, effective January 1, 2015.^{250,251,252} Since then, the U.S. states of Michigan and Ohio have moved to restrict the use of battery cages.^{253,254} The scientific basis for moving away from barren battery cages is extensive. In 2006, a comprehensive analysis of hen welfare in various housing systems was published by the LayWel research project, funded by the European Commission and several member countries of the European Union. This project was a collaborative effort among working groups in seven different European countries that examined data collected from 230 different laying hen flocks.²⁵⁵ The review noted that "conventional cages do not allow hens to fulfil behaviour priorities, preferences and needs for nesting, perching, foraging and dustbathing in particular. The severe spatial restriction also leads to disuse osteoporosis" and determined that "with the exception of conventional cages, we conclude that all systems have the potential to provide satisfactory welfare for laying hens."256 All countries in the European Union are slated to phase out the use of barren battery cages by January 1, 2012.²⁵⁷ Indeed, restrictively confined in barren, crowded battery cages, laying hens suffer from behavioural deprivation, metabolic and reproductive disorders, and broken bones. They also experience painful beak-trimming, careless handling, and inhumane slaughter. Innovative technology and systems for housing,^{258,259} transporting,²⁶⁰ and slaughtering chickens exists that could greatly improve the welfare of laying hens if more widely adopted within the industry. Further, selective breeding for skeletal strength ^{261,262} and reduced propensity to feather peck ²⁶³ would further improve the welfare of hens in commercial egg production. Scientific inquiry has clearly shown that battery cages are inappropriate environments for egg-laying hens and that additional improvements are needed to ensure the welfare of hens in the egg industry. \Box

References

1. Food and Agriculture Organization of the United Nations. 2010. FAOSTAT Statistical Database. http://faostat.fao.org/default.aspx. Accessed December 23, 2010.

2. United Egg Producers. 20082010. United Egg Producers Animal Husbandry Guidelines for U.S. Egg Laying Flocks, 2008 Edition (Alpharetta, GA: United Egg Producers). Most Egg Production Worldwide Continues to be in Traditional Cage Housing. http://www.uepcertified.com/media/news/iec-statistics- release.pdfwww.uepcertified.com/media/pdf/UEP-Animal-Welfare-Guidelines.pdf. Accessed June 18, 2009 December 23, 2010.

3. Personal correspondence with Peter van Horne, economics analyst, International Egg Commission. February 1, 2011.

4. Branckaert R D S and Guèye E F 1999 FAO's programme for support to family poultry production. In Poultry as a Tool in poverty Eradication and Promotion of Gender Equality - Proceedings of a Workshop. http://www.ardaf.org/NR/rdonlyres/C4E20214-3E30-4413-9101-B051380924B9/0/199924Brackaert.pdf. Viewed on February 1, 2011.

5. United Egg Producers. 20082010. United Egg Producers Animal Husbandry Guidelines for U.S. Egg Laying Flocks, 2008 Edition (Alpharetta, GA: United Egg Producers). Most Egg Production Worldwide Continues to be in Traditional Cage Housing. http://www.uepcertified.com/media/news/iec-statistics-release.pdfwww.uepcertified.com/media/pdf/UEP-Animal-Welfare-Guidelines.pdf. Accessed June 18. 2009December 23, 2010.

6. Sharma, V. 2010. Break that cage, says the Dalai Lama. Pune Mirror, September 9. http://www.punemirror.in/index.aspx?page=article§id=2&contentid=2010090920100909231727876baa77e72. Accessed February 1, 2011.

IndiaPRwire. Humane Society International Applauds Chef Mako Ravindran's Cage-Free Egg Initiative. www.indiaprwire.com/pressrelease/agriculture/2011011975362.htm. Accessed February 1, 2011.
 Humane Society International. 2010. Apfel hatches cage-free policy. Press release issued October 5, 2010. http://www.hsi.org/news/press_releases/2010/10/apfel_cage_free_100410.html. Accessed February 1, 2011.

9. Food and Agriculture Organization of the United Nations. 2009. The state of food and agriculture: livestock in the balance, p. 27. http://www.fao.org/docrep/012/i0680e/i0680e.pdf. Accessed August 26, 2010.

Bell DD. 2002. Cage management for layers. In: Bell DD and Weaver WD (eds.), Commercial Chicken Meat and Egg Production, 5th Edition (Norwell, MA: Kluwer Academic Publishers).
 United Egg Producers. 2008. United Egg Producers Animal Husbandry Guidelines for U.S. Egg Laying Flocks, 2008 Edition (Alpharetta, GA: United Egg Producers). www.uepcertified.com/docs/UEP-Animal- Welfare-Guidelines-2007-2008.pdf. Accessed April 30, 2008.

12 .Fraser D, Mench J, and Millman S. 2001. Farm animals and their welfare in 2000. In: Salem DJ and Rowan AN (eds.), State of the Animals 2001 (Washington, DC: Humane Society Press). 13. Metheringham J. 2000. Disposal of day-old chicks—the way forward. World Poultry 16(11):25, 27.

14 Fraser D, Mench J, and Millman S. 2001. Farm animals and their welfare in 2000. In: Salem DJ and Rowan AN (eds.), State of the Animals 2001 (Washington, DC: Humane Society Press).

15. Metheringham J. 2000. Disposal of day-old chicks-the way forward. World Poultry 16(11):25, 27.

16. Appleby MC, Mench JA, and Hughes BO. 2004. Poultry Behaviour and Welfare (Wallingford, U.K.: CABI Publishing, p. 184-6).

17. Metheringham J. 2000. Disposal of day-old chicks—the way forward. World Poultry 16(11):25, 27.

18. Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? Journal of Applied Animal Welfare Science 4(3):207-21.

19. Fraser D, Mench J, and Millman S. 2001. Farm animals and their welfare in 2000. In: Salem DJ and Rowan AN (eds.), State of the Animals 2001 (Washington, DC: Humane Society Press).

20. Cheng H. 2006. Morphopathological changes and pain in beak trimmed laying hens. World's Poultry Science Journal 62(1):41-52.

21. Newberry RC. 2004. Cannibalism. In: Perry GC (ed.), Welfare of the Laying Hen. Poultry Science Symposium Series 27 (Oxfordshire, U.K.: CABI Publishing).

22. Cheng H. 2006. Morphopathological changes and pain in beak trimmed laying hens. World's Poultry Science Journal 62(1):41-52.

23. Gentle MJ and McKeegan DE. 2007. Evaluation of the effects of infrared beak trimming in broiler breeder chicks. The Veterinary Record 160(5):145-8.

24. Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? Journal of Applied Animal Welfare Science 4(3):207-21.

25. Kuenzel WJ. 2007. Neurobiological basis of sensory perception: welfare implications of beak trimming. Poultry Science 86:1273-82.

26. European Food Safety Authority, Animal Health and Animal Welfare. 2005. Scientific report on the welfare aspects of various systems for keeping laying hens. Annex to The EFSA Journal 197:1-23. EFSA- Q-2003-92, p. 78. www.efsa.europa.eu/EFSA/Scientific_Opinion/lh_scirep_final1.pdf. Accessed April 30, 2008.

Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? Journal of Applied Animal Welfare Science 4(3):207-21.

Zi. Duican DH. 2001. Annual wenate issues in the point y industry. Is there a ressol to be realized sournal of Appred Annual Wenate Science 4(3):207-21
 Cheng H. 2006. Morphopathological changes and pain in beak trimmed laying hens. World's Poultry Science Journal 62(1):41-52.

29. Mench JA. 1992. The welfare of poultry in modern production systems. Poultry Science Review 4(2):107-28.

31. Hughes BO and Gentle MJ. 1995. Beak trimming of poultry: its implications for welfare. World's Poultry Science Journal 51(1):51-61.

32. Gentle M and Wilson S. 2004. Pain and the laying hen. In: Perry GC (ed.), Welfare of the Laying Hen (Wallingford, U.K.: CAB International).

33. Cheng H. 2006. Morphopathological changes and pain in beak trimmed laying hens. World's Poultry Science Journal 62(1):41-52.

34. Gentle M and Wilson S. 2004. Pain and the laying hen. In: Perry GC (ed.), Welfare of the Laying Hen (Wallingford, U.K.: CAB International).

Gentle MJ. 1986. Neuroma formation following partial beak amputation (beak trimming) in the chicken. Research in Veterinary Science 41(3):383-5.
 Cheng H. 2006. Morphopathological changes and pain in beak trimmed laying hens. World's Poultry Science Journal 62(1):41-52.

^{30.} Gentle MJ, Waddington D, Hunter LN, and Jones RB. 1990. Behavioural evidence for persistent pain following partial beak amputation in chickens. Applied Animal Behaviour Science 27:149-57.

- 37. Kuenzel WJ. 2007. Neurobiological basis of sensory perception: welfare implications of beak trimming. Poultry Science 86:1273-82.
- 38. Hughes BO and Gentle MJ. 1995. Beak trimming of poultry: its implications for welfare. World's Poultry Science Journal 51(1):51-61.
- 39. Cheng H. 2006. Morphopathological changes and pain in beak trimmed laying hens. World's Poultry Science Journal 62(1):41-52.

40. Lunam CA. 2005. The anatomy and innervation of the chicken beak: effects of trimming and re-trimming. In: Glatz PC (ed.), Poultry Welfare Issues: Beak Trimming (Nottingham, U.K.: Nottingham University Press).

41. Rogers LJ. 1995. The Development of Brain and Behaviour in the Chicken (Wallingford, U.K.: CABI Publishing, pp. 95-7).

42. Hester PY and Shea-Moore M. 2003. Beak trimming egg-laying strains of chickens. World's Poultry Science Journal 59(4):458-74.

43. Mench JA. 1992. The welfare of poultry in modern production systems. Poultry Science Review 4(2):107-28.

44. Duncan IJH. 2003. Letter dated June 25 to Dr. Nancy Halpern, New Jersey Department of Agriculture.

45. Fraser D, Mench J, and Millman S. 2001. Farm animals and their welfare in 2000. In: Salem DJ and Rowan AN (eds.), State of the Animals 2001 (Washington, DC: Humane Society Press).

46. Hughes BO and Duncan IJH. 1972. The influence of strain and environmental factors upon feather pecking and cannibalism in fowls. British Poultry Science 13(6):525-47.

47. Scheideler SE and Shields SJ. 2007. Cannibalism by poultry. NebGuide. University of Nebraska-Lincoln Extension, Institute of Agriculture and Natural Resources.

www.ianrpubs.unl.edu/epublic/live/g1670/build/g1670.pdf. Accessed April 30, 2008.

48. Blokhuis HJ. 1989. The effect of a sudden change in floor type on pecking behaviour in chicks. Applied Animal Behaviour Science 22(1):65-73.

49.Dixon LM, Mason GJ, and Duncan IJH. 2007. What's in a peck? A comparison of the motor patterns involved in feather pecking, dustbathing and foraging. In: Galindo F and Alvarez L (eds.), Proceedings of the 41st International Congress of the ISAE (Merida, Mexico: International Society for Applied Ethology, p. 47).

50. The Welfare of Farmed Animals (England) (Amendment) Regulations. 2002. Statutory Instrument 2002 No. 1646. www.opsi.gov.uk/si/si2002/20021646.htm. Accessed April 30, 2008.

51. European Food Safety Authority, Animal Health and Animal Welfare. 2005. Scientific report on the welfare aspects of various systems for keeping laying hens. Annex to The EFSA Journal 197:1-23. EFSA- Q-2003-92, p. 74. www.efsa.europa.eu/EFSA/Scientific_Opinion/lh_scirep_final1.pdf. Accessed April 30, 2008.

52.Petherick CJ and Rushen J. 1997. Behavioural restriction. In: Appleby MC and Hughes BO (eds.), Animal Welfare (Wallingford, U.K.: CABI Publishing, pp. 89-105).

53.Duncan IJH, Savory CJ, and Wood-Gush DGM. 1978. Observations on the reproductive behaviour of domestic fowl in the wild. Applied Animal Ethology 4:29-42.

54. Hughes BO, Duncan IJH, and Brown MF. 1989. The performance of nest building by domestic hens: is it more important than the construction of a nest? Animal Behaviour 37(2):210-4.

55.Duncan IJH and Kite VG. 1989. Nest site selection and nest-building behaviour in domestic fowl. Animal Behaviour 37(2):215-31.

56.Wood-Gush DGM. 1975. Nest construction by the domestic hen: some comparative and physiological considerations. In: Wright P, Caryl PG, and Vowles DM (eds.), Neural and Endocrine Aspects of Behaviour in Birds (Oxford, U.K.: Elsevier).

57.Wood-Gush DG and Gilbert AB. 1973. Some hormones involved in the nesting behaviour of hens. Animal Behaviour 21(1):98-103.

58.Duncan IJH. 1998. Behavior and behavioral needs. Poultry Science 77(12):1766-72.

59. Follensbee ME, Duncan IJH, and Widowski TM. 1992. Quantifying nesting motivation of domestic hens. Journal of Animal Science 70(Suppl.1):164.

60. Cooper JJ and Appleby MC. 2003. The value of environmental resources to domestic hens: a comparison of the work-rate for food and for nests as a function of time. Animal Welfare 12(1):39-52.

61. Appleby MC, Hughes BO, and Elson HA. 1992. Poultry Production Systems: Behaviour, Management, and Welfare (Wallingford, U.K.: CAB International, p. 186).

62. Sherwin CM and Nicol CJ. 1992. Behaviour and production of laying hens in three prototypes of cages incorporating nests. Applied Animal Behaviour Science 35(1):41-54.

63. Hughes BO. 1983. Space requirements in poultry. In: Baxter SH, Baxter MR, and MacCormack JAD (eds.), Farm Animal Housing and Welfare (Boston, MA: Martinus Nijhoff Publishers).

64. Duncan IJH. 1970. Frustration in the fowl. In: Freeman BM and Gordon RF (eds.), Aspects of Poultry Behaviour (Edinburgh, Scotland: British Poultry Science Ltd.). 65. Baxter M. 1994. The welfare problems of laying hens in battery cages. The Veterinary Record 134(24):614-9.

Word - Gush DGM. 1972. Strain differences in response to sub-optimal stimuli in the fowl. Animal Behaviour 20(1):72-6.
 Yue S and Duncan IJH. 2003. Frustrated nesting behaviour: relation to extra-cuticular shell calcium and bone strength in White Leghorn hens. British Poultry Science 44(2):175-81.

68. Liere DW van and Bokma S. 1987. Short-term feather maintenance as a function of dust-bathing in laying hens. Applied Animal Behaviour Science 18(2):197-204. 69. Olsson IAS and Keeling LJ. 2005. Why in earth? Dustbathing behaviour in jungle and domestic fowl reviewed from a Tinbergian and animal welfare perspective. Applied Animal Behaviour Science

93(3/4)-259-82

70. Shields SJ. 2004. Dustbathing by broiler chickens: characteristics, substrate preference, and implications for welfare. Ph.D. Dissertation, University of California, Davis, pp. 10-12. 71. Duncan IJH, Widowski TM, Malleau AE, Lindberg AC, and Petherick JC. 1998. External factors and causation of dustbathing in domestic hens. Behavioural Processes 43(2):219-28.

72 .Vestergaard K. 1980. The regulation of dustbathing and other behaviour patterns in the laying hen: a Lorenzian approach. In: Moss R (ed.), The Laying Hen and its Environment (The Hague, Netherlands: Martinus Nijhoff, pp. 101-20).

73. Vestergaard K. 1982. Dustbathing in the domestic fowl: diurnal rhythm and dust deprivation. Applied Animal Ethology 8:487-95.

74. Vestergaard KS, Damm BI, Abbott UK, and Bildsoe M. 1999. Regulation of dustbathing in feathered and featherless domestic chicks: the Lorenzian model revisited. Animal Behaviour 58(5):1017-25.

75. Vestergaard KS, Skadhauge E, and Lawson LG. 1997. The stress of not being able to perform dustbathing in laying hens. Physiology and Behavior 62(2):413-9.

76. Widowski TM and Duncan IJH. 2000. Working for a dustbath: are hens increasing pleasure rather than reducing suffering? Applied Animal Behaviour Science 68(1):39-53. 77. Fraser D and Duncan IJH. 1998. "Pleasures," "pains," and animal welfare: toward a natural history of affect. Animal Welfare 7(4):383-96.

78. Baxter M. 1994. The welfare problems of laying hens in battery cages. The Veterinary Record 134(24):614-9.

79. Blokhuis HJ. 1984. Rest in poultry. Applied Animal Behaviour Science 12(3):289-303, citing: Ellenberger W and Baum H. 1943. Handbuch der vergleichenden Anatomie der Haustiere (Berlin, Germany: Springer Verlag, p. 1155).

80. Wilson S, Hughes BO, Appleby MC, and Smith SF. 1993. Effects of perches on trabecular bone volume in laying hens. Research in Veterinary Science 54(2):207-11.

81. Hughes BO, Wilson S, Appleby MC, and Smith SF. 1993. Comparison of bone volume and strength as measures of skeletal integrity in caged laying hens with access to perches. Research in Veterinary Science 54(2):202-6.

82. Duncan ET, Appleby MC, and Hughes BO. 1992. Effect of perches in laying cages on welfare and production of hens. British Poultry Science 33(1):25-35.

83. Appleby MC and Hughes BO. 1991. Welfare of laying hens in cages and alternative systems: environmental, physical and behavioural aspects. World's Poultry Science Journal 47(2):109-28.

84. Cordiner LS and Savory CJ. 2001. Use of perches and nestboxes by laying hens in relation to social status based on examination of consistency of ranking orders and frequency of interaction. Applied Animal Behaviour Science 71:305-17.

85. Appleby MC, Smith SF, and Hughes BO. 1993. Nesting, dustbathing and perching by laying hens in cages-effects of design on behavior and welfare. British Poultry Science 34:835-47.

86. Braastad BO. 1990. Effects on behavior and plumage of a key-stimuli floor and a perch in trip cages for laying hens. Applied Animal Behavior Science 27:127-39.

87. Valkonen E, Valaja J, and Venäläinen E. 2005. The effects of dietary energy and perch design on the performance and condition of laying hens kept in furnished cages. Proceedings of the 7th European Symposium on Poultry Welfare, 15-19 June, Lublin, Poland. Animal Science Papers and Reports 23(Suppl.1):9103-10 (Jastrzebiec, Poland: Polish Academy of Sciences, Institute of Genetics and Animal Breeding).

88. Weeks CA and Nicol CJ. 2006. Behavioral needs, priorities and preferences of laying hens. World's Poultry Science Journal 62:296-307.

89. Olsson IAS and Keeling LJ. 2000. Night-time roosting in laying hens and the effect of thwarting access to perches. Applied Animal Behaviour Science 68(3):243-56.

90. Appleby MC, Hughes BO, and Elson HA. 1992. Poultry Production Systems: Behaviour, Management, and Welfare (Wallingford, U.K.: CAB International, p. 202).

91. Olsson IAS and Keeling LJ. 2000. Night-time roosting in laying hens and the effect of thwarting access to perches. Applied Animal Behaviour Science 68(3):243-56.

92. Olsson IAS and Keeling LJ. 2002. The push-door for measuring motivation in hens: laying hens are motivated to perch at night. Animal Welfare 11(1):11-9.

93. Baxter M. 1994. The welfare problems of laying hens in battery cages. The Veterinary Record 134(24):614-9.

94 .Olsson IAS and Keeling LJ. 2000. Night-time roosting in laying hens and the effect of thwarting access to perches. Applied Animal Behaviour Science 68(3):243-56.

95. Olsson IAS and Keeling LJ. 2002. The push-door for measuring motivation in hens: laying hens are motivated to perch at night. Animal Welfare 11(1):11-9.

96. Savory CJ, Wood-Gush DGM, and Duncan IJH. 1978. Feeding behaviour in a population of domestic fowls in the wild. Applied Animal Ethology 4:13-27.

97. Dawkins MS. 1989. Time budgets in Red Junglefowl as a baseline for the assessment of welfare in domestic fowl. Applied Animal Behaviour Science 24:77-80.

98. Inglis IR and Ferguson NJK. 1986. Starlings search for food rather than eat freely available, identical food. Animal Behaviour 34(2):614-7.

99. Dawkins MS. 1989. Time budgets in Red Junglefowl as a baseline for the assessment of welfare in domestic fowl. Applied Animal Behaviour Science 24:77-80.

100. Duncan IJH and Hughes BO. 1972. Free and operant feeding in domestic fowls. Animal Behaviour 20:775-7.

101. Blokhuis HJ. 1989. The effect of a sudden change in floor type on pecking behaviour in chicks. Applied Animal Behaviour Science 22(1):65-73.

102. Hughes BO. 1983. Space requirements in poultry. In: Baxter SH, Baxter MR, and MacCormack JAD (eds.), Farm Animal Housing and Welfare (Boston, MA: Martinus Nijhoff Publishers).

103. Rowland LO and Harms RH. 1970. The effect of wire pens, floor pens and cages on bone characteristics of laying hens. Poultry Science 49(5):1223-5.

104. Wabeck CJ and Littlefield LH. 1972. Bone strength of broilers reared in floor pens and in cages having different bottoms. Poultry Science 51(3):897-9.

105. Meyer WA and Sunde ML. 1974. Bone breakage as affected by type housing or an exercise machine for layers. Poultry Science 53(3):878-85.

106. Knowles TG and Broom DM. 1990. Limb bone strength and movement in laying hens from different housing systems. The Veterinary Record 126(15):354-6.

107. Norgaard-Nielsen G. 1990. Bone strength of laying hens kept in an alternative system compared with hens in cages and on deep-litter. British Poultry Science 31(1):81-9.

108. McLean KA, Baxter MR, and Michie W. 1986. A comparison of the welfare of laying hens in battery cages and in a perchery. Research and Development in Agriculture 3(2):93-8.

109. Gregory NG and Wilkins LJ. 1989. Broken bones in domestic fowl: handling and processing damage in end-of-lay battery hens. British Poultry Science 30(3):555-62.

110. Hughes BO. 1975. Spatial preference in the domestic hen. British Veterinary Journal 131(5):560-4.

111. Dawkins M. 1978. Welfare and the structure of a battery cage: size and cage floor preferences in domestic hens. British Veterinary Journal 134(5):469-75.

112. Nicol CJ. 1986. Non-exclusive spatial preference in the laying hen. Applied Animal Behaviour Science 15:337-50.

113 . Dawkins M. 1981. Priorities in the cage size and flooring preferences of domestic hens. British Poultry Science 22(3):255-63.

114. Dawkins MS. 1983. Cage size and flooring preferences in litter-reared and cage-reared hens. British Poultry Science 24(2):177-82.

115. Dawkins M. 1978. Welfare and the structure of a battery cage: size and cage floor preferences in domestic hens. British Veterinary Journal 134(5):469-75.

116. Dawkins M. 1981. Priorities in the cage size and flooring preferences of domestic hens. British Poultry Science 22(3):255-63.

117. Dawkins M. 1977. Do hens suffer in battery cages? Environmental preferences and welfare. Animal Behaviour 25(4):1034-46.

118. Nicol CJ. 1986. Non-exclusive spatial preference in the laying hen. Applied Animal Behaviour Science 15:337-50.

119. Nicol CJ. 1987. Effect of cage height and area on the behaviour of hens housed in battery cages. British Poultry Science 28(2):327-35.

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120. Appleby MC, Mench JA, and Hughes BO. 2004. Poultry Behaviour and Welfare (Wallingford, U.K.: CABI Publishing, p. 64).

121. Tanaka T and Hurnik JF. 1992. Comparison of behavior and performance of laving hens housed in battery cages and an aviary. Poultry Science 71(2):235-43.

122 .Duncan IJH. 1981. Animal rights—animal welfare: a scientist's assessment. Poultry Science 60(3):489-99, citing: Wennrich VG and Strauss DD. 1977. Zum Nachweis eines "Triebstaus" bei Haushennen. Deutsche Tierarztliche Wochenschrift 84(8):310-316.

123. Mench JA. 1998. Environmental enrichment and the importance of exploratory behavior. In: Shepherdson DJ, Mellen JD, and Hutchins M (eds.), Second Nature (Washington, DC: Smithsonian Institution Press).

124. Wemelsfelder F and Birke L. 1997. Environmental challenge. In: Appleby MC and Hughes BO (eds.), Animal Welfare (Wallingford, U.K.: CABI Publishing).

125. Wood-Gush DGM and Vestergaard K. 1989. Exploratory behavior and the welfare of intensively kept animals. Journal of Agricultural Ethics 2:161-9.

126. Wemelsfelder F and Birke L. 1997. Environmental challenge. In: Appleby MC and Hughes BO (eds.), Animal Welfare (Wallingford, U.K.: CABI Publishing).

127. Wood-Gush DGM and Vestergaard K. 1989. Exploratory behavior and the welfare of intensively kept animals. Journal of Agricultural Ethics 2:161-9. 128. Wemelsfelder F and Birke L. 1997. Environmental challenge. In: Appleby MC and Hughes BO (eds.), Animal Welfare (Wallingford, U.K.: CABI Publishing).

129. Baer JF. 1998. A veterinary perspective of potential risk factors in environmental enrichment. In: Shepherdson DJ, Mellen JD, and Hutchins M (eds.), Second Nature (Washington, DC: Smithsonian Institution Press)

130. Wemelsfelder F and Birke L. 1997. Environmental challenge. In: Appleby MC and Hughes BO (eds.), Animal Welfare (Wallingford, U.K.: CABI Publishing).

131. Wood-Gush DGM and Vestergaard K. 1989. Exploratory behavior and the welfare of intensively kept animals. Journal of Agricultural Ethics 2:161-9.

132. U.S. Department of Agriculture National Agricultural Statistics Service. 2008. Chickens and eggs: 2007 summary. http://usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg/C02-28-2008.pdf. Accessed April 30, 2008.

133. Ensminger ME. 1992. Poultry Science, 3rd Edition (Danville, IL: Interstate Publishers, p. 5).

134. Romanov MN and Weigendt S. 2001. Analysis of genetic relationships between various populations of domestic and jungle fowl using microsatellite markers. Poultry Science 80:1057-63. 135. Jacob JP, Miles RD, and Mather FB. 2000. Egg quality. University of Florida, Institute of Food and Agricultural Sciences, Cooperative Extension Service. http://edis.ifas.ufl.edu/PS020. Accessed April 30, 2008.

136. Keshavarz K. 1990. Causes of prolapse in laying flocks. Poultry Digest, September, p. 42.

137. Alberta Agriculture Food and Rural Development. 2002. Common laying hen disorders: prolapse in laying hens. www.agric.gov.ab.ca/livestock/poultry/prolapse.html. Accessed April 30, 2008. 138. Newberry RC. 2004. Cannibalism. In: Perry GC (ed.), Welfare of the Laying Hen. Poultry Science Symposium Series 27 (Oxfordshire, U.K.: CABI Publishing).

139. Alberta Agriculture Food and Rural Development. 2002. Common laying hen disorders: prolapse in laying hens. www.agric.gov.ab.ca/livestock/poultry/prolapse.html. Accessed April 30, 2008.

140. Newberry RC. 2004. Cannibalism. In: Perry GC (ed.), Welfare of the Laying Hen. Poultry Science Symposium Series 27 (Oxfordshire, U.K.: CABI Publishing).

141. Anjum AD, Payne LN, and Appleby EC. 1989. Oviduct magnum tumours in the domestic fowl and their association with laying. The Veterinary Record 125(2):42-3.

142. Webster AB. 2004. Welfare implications of avian osteoporosis. Poultry Science 83(2):184-92.

143. Knowles TG and Broom DM. 1990. Limb bone strength and movement in laying hens from different housing systems. The Veterinary Record 126(15):354-6.

144. Knowles TG and Broom DM. 1990. Limb bone strength and movement in laying hens from different housing systems. The Veterinary Record 126(15):354-6.

145. Nightingale TE, Littlefield LH, Merkley JW, and Richardi JC. 1974. Immobilization-induced bone alterations in chickens. Canadian Journal of Physiology and Pharmacology 52(5):916-9.

146. Meyer WA and Sunde ML. 1974. Bone breakage as affected by type housing or an exercise machine for layers. Poultry Science 53(3):878-85.

147. Norgaard-Nielsen G. 1990. Bone strength of laying hens kept in an alternative system compared with hens in cages and on deep-litter. British Poultry Science 31(1):81-9.

148 .Webster AB. 2004. Welfare implications of avian osteoporosis. Poultry Science 83(2):184-92.

149. Scientific Panel on Animal Health and Welfare. 2005. Opinion of the Scientific Panel on Animal Health and Welfare on a request from the Commission related to the welfare aspects of various

systems of keeping laying hens. The EFSA Journal 197:1-23. <u>www.efsa.europa.eu/EFSA/Scientific_Opinion/I.pdf</u>. Accessed April 30, 2008. 150. Leyendecker M, Hamann H, Hartung J, et al. 2005. Keeping laying hens in furnished cages and an aviary housing system enhances their bone stability. British Poultry Science 46(5):536-44. 151. Fleming RH, McCormack HA, McTeir L, and Whitehead CC. 2006. Relationships between genetic, environmental and nutritional factors influencing osteoporosis in laying hens. British Poultry Science 47(6):742-55.

152. Fleming RH, Whitehead CC, Alvey D, Gregory NG, and Wilkins LJ. 1994. Bone structure and breaking strength in laying hens housed in different husbandry systems. British Poultry Science 35(5):651-62.

153. Scientific Panel on Animal Health and Welfare. 2005. Opinion of the Scientific Panel on Animal Health and Welfare on a request from the Commission related to the welfare aspects of various systems of keeping laying hens. The EFSA Journal 197:1-23. www.efsa.europa.eu/EFSA/Scientific_Opinion/lh_opinion1.pdf. Accessed April 30, 2008.

154. Gregory NG, Wilkins LJ, Eleperuma SD, Ballantyne AJ, and Overfield ND. 1990. Broken bones in domestic fowls: effect of husbandry system and stunning method in end-of-lay hens. British Poultry Science 31(1):59-69

155. Gregory NG, Wilkins LJ, Knowles TG, Sørensen P, and van Niekerk T. 1994. Incidence of bone fractures in European layers. Proceedings of the 9th European Poultry Conference, Vol. II (Glasgow, U.K., pp. 126-8).

156. Gregory NG and Wilkins LJ. 1991. Broken bones in hens. The Veterinary Record 129(25/26):559.

157. Budgell KL and Silversides FG. 2004. Bone breakage in three strains of end-of-lay hens. Canadian Journal of Animal Science 84(4):745-7.

158. Sandilands V, Sparks N, Wilson S, and Nevison I. 2005. Laying hens at depopulation: the impact of the production system on bird welfare. British Poultry Abstracts 1:23-4.

159. Weber RM, Nogossek M, Sander I, Wandt B, Neumann U, and Glünder G. 2003. Investigations of laying hen health in enriched cages as compared to conventional cages and a floor pen system. Wiener Tierärztliche Monatsschrift 90(10):257-66.

160. Sandilands V, Sparks N, Wilson S, and Nevison I. 2005. Laying hens at depopulation: the impact of the production system on bird welfare. British Poultry Abstracts 1:23-4.

161. Gregory NG and Wilkins LJ. 1989. Broken bones in domestic fowl: handling and processing damage in end-of-lay battery hens. British Poultry Science 30(3):555-62.

162 Gregory NG, Wilkins LJ, Eleperuma SD, Ballantyne AJ, and Overfield ND. 1990. Broken bones in domestic fowls: effect of husbandry system and stunning method in end-of-lay hens. British Poultry Science 31(1):59-69.

163. Gregory NG and Wilkins LJ. 1989. Broken bones in domestic fowl: handling and processing damage in end-of-lay battery hens. British Poultry Science 30(3):555-62.

164. Gregory NG, Wilkins LJ, Knowles TG, Sørensen P, and van Niekerk T. 1994. Incidence of bone fractures in European layers. Proceedings of the 9th European Poultry Conference, Vol. II (Glasgow, U.K., pp. 126-8).

165. Mississippi State University Extension Service. 2008. Causes for fatty liver hemorrhagic syndrome. www.msucares.com/poultry/feeds/poultry_laying.html. Accessed April 30, 2008.

166. Leeson S. 2007. Metabolic challenges: past, present, and future. Journal of Applied Poultry Research 16:121-5.

167. Merck Veterinary Manual. 2003. Fatty liver syndrome: introduction. Merck Veterinary Manual Online, 8th Edition. www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/202400.htm. Accessed April 30, 2008

168 .McMullin P. 2004. A Pocket Guide to Poultry Health and Disease (Sheffield, U.K.: 5M Enterprises Ltd., p. 123).

169 . Leeson S. 2007. Metabolic challenges: past, present, and future. Journal of Applied Poultry Research 16:121-5.
 170 . Mississippi State University Cooperative Extension Service. 1997. Miscellaneous management related diseases. www.msstate.edu/dept/poultry/dismisc.htm. Accessed April 30, 2008.

171. European Food Safety Authority, Animal Health and Animal Welfare. 2005. Scientific report on the welfare aspects of various systems for keeping laying hens. Annex to The EFSA Journal 197:1-23. EFSA-Q-2003-92, p. 28. www.efsa.europa.eu/EFSA/Scientific_Opinion/lh_scirep_final1.pdf. Accessed April 30, 2008. 172. Crespo R and Shivaprasad HL. 2003. Developmental, metabolic, and other noninfectious disorders. In: Saif YM, Barnes HJ, Glisson JR, Fadly AM, McDougald LR, and Swayne DE (eds.), Diseases

of Poultry, 11th Edition (Ames, IA: Iowa State Press, pp. 1082-3).

173. Squires EJ and Leeson S. 1988. Aetiology of fatty liver syndrome in laying hens. British Veterinary Journal 144(6):602-9.

174 . Leeson S. 2007. Metabolic challenges: past, present, and future. Journal of Applied Poultry Research 16:121-5.

175. Webster AB. 2004. Welfare implications of avian osteoporosis. Poultry Science 83(2):184-92.

176. Riddell C, Helmboldt CF, Singsen EP, and Matterson LD. 1968. Bone pathology of birds affected with cage layer fatigue. Avian Diseases 12(2):285-97.

177. Webster AB. 2004. Welfare implications of avian osteoporosis. Poultry Science 83(2):184-92.

178. Mississippi State University Cooperative Extension Service. 1997. Miscellaneous management related diseases. www.msstate.edu/dept/poultry/dismisc.htm. Accessed April 30, 2008.

179 .Riddell C. 1992. Non-infectious skeletal disorders of poultry: an overview. In: Whitehead CC (ed.), Bone Biology and Skeletal Disorders in Poultry. Poultry Science Symposium Number Twenty-three (Oxfordshire, U.K.: Carfax Publishing Company).

180. Riddell C, Helmboldt CF, Singsen EP, and Matterson LD. 1968. Bone pathology of birds affected with cage layer fatigue. Avian Diseases 12(2):285-97.

181. Riddell C. 1992. Non-infectious skeletal disorders of poultry: an overview. In: Whitehead CC (ed.), Bone Biology and Skeletal Disorders in Poultry. Poultry Science Symposium Number Twenty-three (Oxfordshire, U.K.: Carfax Publishing Company).

182. Riber AB, Wichman A, Braastad BO, and Forkman B. 2007. Effects of broody hens on perch use, ground pecking, feather pecking and cannibalism in domestic fowl (Gallus gallus domesticus). Applied Animal Behaviour Science 106(1-3):39-51.

183. Gentle MJ and Hunter LN. 1991. Physiological and behavioural responses associated with feather removal in Gallus gallus var domesticus. Research in Veterinary Science 50(1):95-101.

184. Peguri A and Coon C. 1993. Effect of feather coverage and temperature on layer performance. Poultry Science 72(7):1318-29.

185. Tauson R and Svensson SA. 1980. Influence of plumage condition on the hen's feed requirement. Swedish Journal of Agricultural Research 10(1):35-9.

186. Newberry RC. 2004. Cannibalism. In: Perry GC (ed.), Welfare of the Laying Hen. Poultry Science Symposium Series 27 (Oxfordshire, U.K.: CABI Publishing).

187. European Food Safety Authority, Animal Health and Animal Welfare. 2005. Scientific report on the welfare aspects of various systems for keeping laying hens. Annex to The EFSA Journal 197:1-23. EFSA- Q-2003-92, p. 78. www.efsa.europa.eu/EFSA/Scientific_Opinion/lh_scirep_final1.pdf. Accessed April 30, 2008.

188. Blokhuis HJ. 1989. The effect of a sudden change in floor type on pecking behaviour in chicks. Applied Animal Behaviour Science 22(1):65-73.

189. Green LE, Lewis K, Kimpton A, and Nicol CJ. 2000. Cross-sectional study of the prevalence of feather pecking in laying hens in alternative systems and its associations with management and disease. The Veterinary Record 147(9):233-8.

190. Huber-Eicher B and Sebo F. 2001. Reducing feather pecking when raising laying hen chicks in aviary systems. Applied Animal Behaviour Science 73:59-68.

191. Appleby MC, Hughes BO, and Hogarth GS. 1989. Behaviour of laying hens in a deep litter house. British Poultry Science 30(3):545-53.

192. Appleby MC, Hogarth GS, Anderson JA, Hughes BO, and Whittemore CT. 1988. Performance of a deep litter system for egg production. British Poultry Science 29(4):735-51.

Tauson R, Wahlstrom A, and Abrahamsson P. 1999. Effect of two floor housing systems and cages on health, production, and fear response in layers. Journal of Applied Poultry Research 8(2):152-9.
 Duncan IJH. 2004. Welfare problems of poultry. In: Benson GJ and Rollin BE (eds.), The Well-Being of Farm Animals: Challenges and Solutions (Ames, IA: Blackwell Publishing).
 Bell DD. 2002. Flock replacement programs and flock recycling. In: Bell DD and Weaver WD (eds.), Commercial Chicken Meat and Egg Production, 5th Edition (Norwell, MA: Kluwer Academic Publishers, pp. 1059-77).

196. Bell DD. 2003. Historical and current molting practices in the U.S. table egg industry. Poultry Science 82(6):965-70.

197. Bell DD. 2002. Flock replacement programs and flock recycling. In: Bell DD and Weaver WD (eds.), Commercial Chicken Meat and Egg Production, 5th Edition (Norwell, MA: Kluwer Academic Publishers, p. 1067).

198 .Scanes CG, Brant G, and Ensminger ME. 2004. Poultry Science, 4th Edition (Upper Saddle River, NJ: Pearson Prentice Hall, p. 228).

199. Fraser D, Mench J, and Millman S. 2001. Farm animals and their welfare in 2000. In: Salem DJ and Rowan AN (eds.), State of the Animals 2001 (Washington, DC: Humane Society Press).

200. Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? Journal of Applied Animal Welfare Science 4(3):207-21.

201. Mench JA. 1992. The welfare of poultry in modern production systems. Poultry Science Review 4(2):107-28.

202. Lima MR de, Silva JHV da, Costa FGP, Rocha JKP, Lima GS de. 2009. New method to improve performance of hens during forced molt. Acta Veterinaria Brasilica 3(2):88-91. 203. Scherer MR, Garcia EA, Berto DA et al. 2009. Effect of the methods of forced molt on the performance and egg quality of laying hens during the second cycle of production. Veterinária e Zootecnia

204. Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? Journal of Applied Animal Welfare Science 4(3):207-21.

205. Animal Welfare Board of India. March 9, 2011.

206. Anish D, Sastry KVH, Sundaresan NR, Saxena VK, Singh R, and Mohan J. 2008. Reproductive tissue regression: involvement of caspases, inducible nitric oxide synthase and nitric oxide during moulting in White Leghorn hens. Journal Animal Reproduction Science 104(2/4):329-43.

207. United Egg Producers. 2010. Animal husbandry guidelines for U.S. egg laying flocks, 2010 edition, pp. 3, 9-10. www.uepcertified.com/media/pdf/UEP-Animal-Welfare-Guidelines.pdf. Accessed January 4, 2011.

208. Donalson LM, Kim WK, Woodward CL, et al. 2005. Utilizing different ratios of alfalfa and layer ration for molt induction and performance in commercial laying hens. Poultry Science 84(3):362-9. 209. Biggs PE, Persia ME, Koelkebeck KW, and Parsons CM. 2004. Further evaluation of nonfeed removal methods for molting programs. Poultry Science 83(5):745-52.

210. Mazzuco H and Hester PY. 2005. The effect of an induced molt using a nonfasting program on bone mineralization of white leghorns. Poultry Science 84(9):1483-90.

211. Kim WK, Donalson LM, Herrera P, Kubena LF, Nisbet DJ, and Ricke SC. 2005. Comparisons of molting diets on skeletal quality and eggshell parameters in hens at the end of the second egg-laying cycle. Poultry Science 84(4):522-7.

212. Scherer MR, Garcia EA, Berto DA et al. 2009. Effect of the methods of forced molt on the performance and egg quality of laying hens during the second cycle of production. Veterinária e Zootecnia 16(1):195-203.

213. Galeano LF, Zoot MSc; Sorza JD, et al. 2010. The effects on the reproductive and digestive tract and loss of body weight of the Brown egg layers submitted to ovarian rest. Revista Colombiana de Ciencias Pecuarias, 23(2). http://rccp.udea.edu.co/index.php/ojs/article/view/582/527. Accessed February 1, 2011

214. Kathiravan P, Thavasiappan V, Mohan B. 2007. Egg quality studies in spent chicken after forced moulting. Indian Veterinary Journal 84:488-491.

215. Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? Journal of Applied Animal Welfare Science 4(3):207-21.

216. Holt PS. 2003. Molting and Salmonella enterica serovar enteritidis infection: the problem and some solutions. Poultry Science 82(6):1008-10.

217. Holt. PS. 1993. Effect of induced molting on the susceptibility of white leghorn hens to a Salmonella entertitidis infection. Avian Diseases 37:412-7.

218. Holt PS. 2003. Molting and Salmonella enterica serovar enteritidis infection: the problem and some solutions. Poultry Science 82(6):1008-10.

219. U.S. Department of Agriculture Food Safety and Inspection Service. 1998. Salmonella entertitidis risk assessment for shell eggs and egg products, final report: production module.

www.fsis.usda.gov/ophs/risk/pdfrisk2.pdf. Accessed August 26, 2008.

220. Bell D. 1987. Is molting still a viable replacement alternative? Poultry Tribune 93(5):32-35.

221. Wolfensohn S and Lloyd M. 2003. Birds. In: Wolfensohn S and Lloyd M (eds.), Handbook of Laboratory Animal Management and Welfare (Third Edition) (Oxford, U.K.: Blackwell Publishing Ltd, pp. 365-79).

222 . Kristensen HH, Berry PS, and Tinker DB. 2001. Depopulation systems for spent hens—a preliminary evaluation in the United Kingdom. Journal of Applied Poultry Research 10:172-7.

223. Knowles TG and Broom DM. 1990. The handling and transport of broilers and spent hens. Applied Animal Behaviour Science 28:75-91.

224 . Knowles TG. 1994. Handling and transport of spent hens. World's Poultry Science Journal 50(1):60-1.

225. Weeks CA. 2007. Poultry handling and transport. In: Grandin T (ed.), Livestock Handling and Transport, 3rd Edition (Wallingford, U.K.: CAB International, pp. 295-311).

226. Mench JA. 1992. The welfare of poultry in modern production systems. Poultry Science Review 4(2):107-28.

227. Knowles TG and Broom DM. 1990. The handling and transport of broilers and spent hens. Applied Animal Behaviour Science 28:75-91.

228. Kannan G and Mench JA. 1996. Influence of different handling methods and crating periods on plasma corticosterone concentrations in broilers. British Poultry Science 37(1):21-31.

229. Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? Journal of Applied Animal Welfare Science 4(3):207-21.

230. Duncan IJH. 2001. Animal welfare issues in the poultry industry: is there a lesson to be learned? Journal of Applied Animal Welfare Science 4(3):207-21.

231. Knowles TG and Broom DM. 1990. Limb bone strength and movement in laying hens from different housing systems. The Veterinary Record 126(15):354-6.

232. Newberry RC, Webster AB, Lewis NJ, and Van Arnam C. 1999. Management of spent hens. Journal of Applied Animal Welfare Science 2(1):13-29.

233. Mitchell MA and Kettlewell PJ. 2004. Transport of chicks, pullets and spent hens. In: Perry GC (ed.), Welfare of the Laying Hen (Cambridge, MA: CABI Publishing).

234. Knowles TG and Wilkins LJ. 1998. The problem of broken bones during the handling of laying hens—a review. Poultry Science 77(12):1798-802.

235. Gregory NG and Wilkins LJ. 1992. Skeletal damage and bone defects during catching and processing. In: Whitehead CC (ed.), Bone Biology and Skeletal Disorders in Poultry. Poultry Science Symposium Number Twenty-three (Oxfordshire, U.K.: Carfax Publishing).

236. Knowles TG. 1994. Handling and transport of spent hens. World's Poultry Science Journal 50(1):60-1.

237. Gregory NG and Wilkins LJ. 1989. Broken bones in domestic fowl: handling and processing damage in end-of-lay battery hens. British Poultry Science 30(3):555-62.

238. Webster AB, Fletcher DL, Savage SI. 1996. Humane On Farm Killing of Spent Hens. Applied Poultry Science 5:191-200.

239. Say, RR (trans.). 1987. Manual of Poultry Production in the Tropics (Wallingford, U.K.:CAB International, p. 92).

240. Ekarius C. 1999. Small-Scale Livestock Farming: A Grass-based Approach for Health, Sustainability, and Profit (North Adams, MA: Storey Publishing, p. 131).

241. Silverside D and Jones M. 1992. Small scale poultry processing. FAO Animal Production and Health Paper 98, Chapter 3. Food and Agriculture Organization of the United Nations.

www.fao.org/docrep/003/t0561e/T0561E00.htm#TOC. Accessed February 18, 2011.

242. Fielding R, Lam WWT, Ho EYY, Lam TH, Hedley AJ, and Leung GM. 2005. Avian influenza risk perception, Hong Kong. Emerging Infectious Diseases 11(5):677-82.

243. Fielding R, Lam WWT, Ho EYY, Lam TH, Hedley AJ, and Leung GM. 2005. Avian influenza risk perception, Hong Kong. Emerging Infectious Diseases 11(5):677-82.

244 .Silverside D and Jones M. 1992. Small scale poultry processing. FAO Animal Production and Health Paper 98, Chapter 1. Food and Agriculture Organization of the United Nations.

www.fao.org/docrep/003/t0561e/T0561E00.htm#TOC. Accessed February 18, 2011. 245. Silverside D and Jones M. 1992. Small scale poultry processing. FAO Animal Production and Health Paper 98, Chapter 1. Food and Agriculture Organization of the United Nations. www.fao.org/docrep/003/t0561e/T0561E00.htm#TOC. Accessed February 18, 2011.

246 .Sims LD, Ellis TM, Liu KK, et al. 2003. Avian influenza in Hong Kong 1997-2002. Avian Diseases 47(s3):832-8.

247. Shields SJ and Raj ABM. 2010. A Critical Review of Electrical Water-bath Stun Systems for Poultry Slaughter and Recent Developments in Alternative Technologies. Journal of Applied Animal Welfare Science 13(4):281-99.

248. Silverside D and Jones M. 1992. Small scale poultry processing. FAO Animal Production and Health Paper 98, Chapter 3. Food and Agriculture Organization of the United Nations. www.fao.org/docrep/003/t0561e/T0561E00.htm#TOC. Accessed February 18, 2011.

249. Silverside D and Jones M. 1992. Small scale poultry processing. FAO Animal Production and Health Paper 98, Chapter 3. Food and Agriculture Organization of the United Nations. www.fao.org/docrep/003/t0561e/T0561E00.htm#TOC. Accessed February 18, 2011.

250. California Health and Safety Code, Division 20, Chapter 13.8, Farm Animal Cruelty, Section 25990- 25994. www.aroundthecapitol.com/code/getcode.html?file=/hsc/25001-26000/25990-25994. Accessed March 12, 2009.

251. California Secretary of State Debra Bowen. 2008. Statement of Vote, November 4, 2008, General Election. www.sos.ca.gov/elections/sov/2008_general/sov_complete.pdf. Accessed March 12, 2009. 252. Hall C. 2008. Measure to provide better treatment of farm animals passes. Los Angeles Times, Nov. 5. www.latimes.com/news/local/la-me-farm5-2008nov05,0,5429000.story. Accessed March 12, 2009.

253. Scott-Thomas, Caroline. 2010. One million Kraft Foods eggs go cage-free. Food Navigator-USA.com. http://www.foodnavigator-usa.com/content/view/print/344491. Viewed on December 23, 2010. 254. Eggen, Dan. 2010. Egg industry fighting efforts to increase cage sizes. Washington Post. September 7, 2010.

255. Blokhuis HJ, Niekerk TF van, Bessei W, et al. 2007. The LayWel project: welfare implications of changes in production systems for laying hens. World's Poultry Science Journal 63(1):101-14. 256. LayWel. 2006. Welfare implications of changes in production systems for laying hens: deliverable 7.1: overall strength and weaknesses of each defined housing system for laying hens, and detailing the overall welfare impact of each housing system. www.laywel.eu/web/pdf/deliverable%2071%20welfare%20assessment-2.pdf. Accessed April 30, 2008.

257. Dewulf, Jeroen. 2010. Salmonella thrives in cage housing. WorldPoultry.net. May 20, 2010. http://www.worldpoultry.net/news/salmonella-thrives-in-cage-housing-7481.html. Viewed on December 23, 2010.

258. Baxter MR. 1991. Alternatives to the battery cage for laying hens. Farm Building Progress 104:21-3.

259. Ballantyne AJ and Hill JA. 1985. Aviary housing, a competitive design. Poultry 1(5):8-11.

260. Kettlewell PJ and Mitchell MA. 2001. Comfortable ride: Concept 2000 provides climate control during poultry transport. Resource: Engineering & Technology for a Sustainable World, September, pp. 13-4.

261. Fleming RH, McCormack HA, McTeir L, and Whitehead CC. 2006. Relationships between genetic, environmental and nutritional factors influencing osteoporosis in laying hens. British Poultry Science 47(6):742-55.

262. Bishop SC, Fleming RH, McCormack HA, Flock DK, and Whitehead CC. 2000. Inheritance of bone characteristics affecting osteoporosis in laying hens. British Poultry Science 41(1):33-40. 263. Flock DK, Laughlin KF, and Bentley J. 2005. Minimizing losses in poultry breeding and production: how breeding companies contribute to poultry welfare. World's Poultry Science Journal 61(2):227-37. (This Report has been reprinted from hsi.org/farmanimalresearch.)

Humane Welfare Needs of Animals in the Indian Poultry Industry

Shri N. G. Jayasimha, **Campaign Manager, Humane Society International**



Appeal

In 2008, more than 2.6 billion chickens were slaughtered for their meat and 232.2 million hens were raised for eggs in India.¹ According to Government of India (GOI) statistics, the Andhra Pradesh region had the highest poultry population in the year 2005 – 2006, followed by Tamil Nadu, Maharashtra, and Punjab.¹ In India, 140 to 200 million egg-laying hens are confined to barren, wire battery cages,^{2,3} so

suffering, pain, and death.

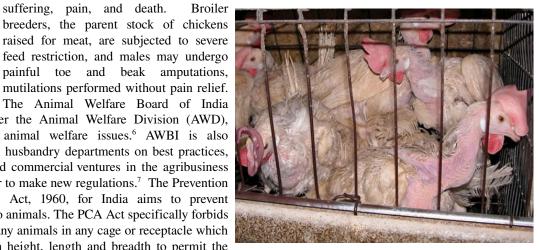
restrictive they cannot even spread their wings. Each bird has less living space than an A4 sheet of paper. With no opportunity to experience most natural behaviours, such as nesting, dust bathing, perching and foraging, these birds endure lives wrought with suffering.⁴ Billions of

If you are interested in joining the battle against battery cages – please email Jayasimha at ngjayasimha@hsi.org

"In India, 140 to 200 million, egg-laying hens are confined to barren, wire battery cages, so restrictive they cannot even spread their wings. Each bird has less living space than an A4 sheet of paper."

broiler chickens also experience crowded confinement, unnatural lighting regimes, poor air quality, stressful handling during

transportation, and inadequate stunning and slaughter procedures. Broiler chickens are selectively bred for rapid growth and thus prone to a variety of skeletal and metabolic disorders that can cause



The Animal Welfare Board of India (AWBI), a statutory body under the Animal Welfare Division (AWD), advises the government on animal welfare issues.⁶ AWBI is also responsible for advising animal husbandry departments on best practices, and inspecting factory farms and commercial ventures in the agribusiness industry. The body has the power to make new regulations.⁷ The Prevention of Cruelty to Animals (PCA) Act, 1960, for India aims to prevent unnecessary pain and suffering to animals. The PCA Act specifically forbids the keeping or confinement of "any animals in any cage or receptacle which does not measure sufficiently in height, length and breadth to permit the animal a reasonable opportunity for movement."8

Structure of the Industry

The majority of eggs and chicken meat in India come from industrial facilities, as opposed to rural homesteads.¹⁰ While the number of commercial birds - bred for intensive indoor production - increased by more than nine percent between 1997 and 2003, the number of traditional free-range birds increased by less than two percent.¹¹ The poultry sector has grown from a backyard activity into a major commercial activity in four and half decades, but the backyard poultry sector of rural India makes up 52% (2003) of the total fowl population and 6.2% of ducks. This sector contributes 23% (2005-06) of the total eggs produced.¹²

There has been a significant change in the ownership and size of backyard poultry within the last decade and it declined by 7% between 1991 and 2003.¹³ Commercial varieties of birds consist of either smaller birds bred to produce large quantities of eggs over an 18-22 month period, or larger birds genetically selected for fast growth, allowing them to be slaughtered for meat within eight weeks.¹⁴ The former are egg laying hens, and the latter are broilers. Egg laying hens do not produce high quality meat, though they are sold cheaply for meat when their egg production begins to decline at the end of 18-22 months¹⁴. Since males of these breeds have no commercial value, they are killed at birth.¹⁵ Broilers are not generally used for egg production, except for the purpose of breeding. Commercial egg laying hens and broiler meat chickens are bred in one of the country's 600 commercial or government hatcheries.¹⁶ Apparently, animal welfare regulations are lacking in both government and commercial hatcheries, and in most production facilities.

Contract Farming/Integrated Production

Although a major proportion of poultry eggs and meat is still produced on independent farms, vertical integration and contract growing have become very popular in the southern and western regions of the country for broiler production.¹⁷ Poultry integrators have been expanding most rapidly in southern India, particularly in the Coimbatore district of Tamil Nadu, that reportedly has a large

"As many of these companies prescribe production practices in addition to providing key inputs, there may be an opportunity to improve the welfare of a large number of animals by working with a single company to adopt cage-free housing for egg laying hens, or lower stocking densities in broiler sheds."

integration, which now accounts for about 75% of production and consumption. Integrations have also recently become more prevalent in western India, including Pune, Nashik, and Mumbai, where they now account for about 35% of production and consumption. Smaller, independent and partially integrated producers control poultry production in eastern and northern regions. Arambag hatchery, Kolkota is a major integrator operating in the eastern region of the country. The major integrators and contract growers operating in the southern and western region of the country include Venkateswara, Suguna, Pioneer, Diamond Riverdale, Star chick, Gold chick, Godrej real gold, Godrej agro vet, Santhi, Peninsula, Skylark and Komarla. Some of these integrators are also selling their processed chicken products in brand names like Venkateswara with brand name Venky, Godrej-Realgold, Lifeline-Tenderchicken, Nutri-Freshchicken, and Skylark-Nutririch. Under a production contract, the integrators supply major inputs like day-old chicks, feed, veterinary care, pharmaceuticals and biological and technical services. They are also responsible for the disposal of live broilers. Integrators bear all the input and output price risk and share the production risk with the broiler producer. However, the grower does not share any benefits

from increasing output prices, although they supply the labour, infrastructure and management skills needed for production. They receive a growing fee per bird based on performance such as FCR, harvest recovery and average live

weight. They get additional remuneration on superior performance standards set in the contract. If the performance is below standard, a corresponding amount per bird is subtracted from the contract fee.¹⁸

As many of these companies prescribe production practices in addition to providing key inputs, there may be an opportunity to improve the welfare of a large number of animals by working with a single company to adopt cage-free housing for egg laying hens, or lower stocking densities in broiler sheds.

Conversely, many small farmer groups have spoken out against the corporate control of egg and chicken meat production in India. Contract farming throughout India lacks a legal framework or any credible contract enforcement mechanism, leaving independent producers vulnerable to financial losses resulting from contractual breaches on the part of the larger company.^{19,20} Such groups could be potential allies in a campaign against large poultry companies and the industrial farm animal production practices they espouse. Even integrators are confined to local markets, one reason is the high cost of moving live birds across long distances (above 200 km). Poor road conditions, lack of refrigerated transport/cold storage infrastructure, and weak distribution networks in rural areas means that the rural population (over 70% of India's total population) is not reached by commercial producers. Furthermore, most consumers prefer meat from live birds and lack interest in processed or chilled meat.²¹ The regional focus of egg and chicken meat markets may offer some opportunity for small farmers, using less intensive, free-range husbandry practices, to

compete with more damaging industrial egg and meat production facilities.

Feeding the Animals

The poultry industry is highly dependent on the feed industry; feed alone constitutes 70% of the cost of chicken meat and egg production. About 50% of India's maize goes into poultry feed, and industry leaders believe that the current growth rate of the poultry industry cannot be sustained without increasing the production of maize.²² Land and resources for growing animal feed would be better used to produce grains for India's foodinsecure households. Globally, as much as 80% of the global soya bean crop and a significant portion of the annual corn crop in the US are fed to cattle, pigs, chickens, and other animals used in agriculture.²³ The use of grains to produce animal feed is an extremely inefficient use of food. Typically, 3 kg (6.6 lb) of grain is needed to produce just 1 kg (2.2 lb) of meat.²⁴ Protein conversion inefficiencies compiled by Professor Vaclav Smil in Dr. Chetana Mirle, Director, the Faculty of Environment at the University of Manitoba clearly show that depending on animal products for



Farm Animals, HSI

protein is not the most efficient use of resources. According to his research, chickens fed a diet of corn and soya beans can only utilize 20% of the protein present in those grains, meaning that 80% is simply wasted. Most of the energy farm animals consume from grains and other sources of food is used for metabolic processes or for forming bones, cartilage, and other non-edible parts (offal), as well as faeces.²⁵ Water, another scarce agricultural resource, is also wasted in meat and egg production. According to the International Water Management Institute and the Stockholm International Water Institute, an average of 6 m³/kg of water is required to produce 1 kg (2.2 lb) of chicken, whereas 0.4-3 m³/kg of water is needed to produce 1 kg (2.2 lb) of cereals.²⁶



Impacts on Environment and Human Health

Industrial egg and meat production pollutes the water, air, and soil. It harms wildlife habitat and contributes significantly to the global climate crisis.²⁷ A typical egg production facility in India houses 50,000 birds.²⁸ Rows of cages are stacked on top of each other in filthy sheds that often reek of ammonia. While broiler chickens are not confined in cages, they still spend their entire lives indoors, crowded into sheds by the tens of thousands. The crowded, stressful, and unsanitary conditions in commercial poultry facilities are ripe for the development of infectious diseases.²⁹ While there is a clear lack of research on the environmental and human impacts of industrial farm animal production in India, evidence from other parts of the world strongly suggests that these facilities are dangerously stressing human communities and natural systems. Households that consume eggs and meat from factory farms also face health risks. Standard industry practices, including the intensive confinement in crowded battery cages, stress hens and compromise their immune systems. They become more susceptible to infections, which can be passed on to humans via eggs and meat. Antibiotics used in industrial egg and broiler chicken farming have led to the emergence of resistant strains of *Salmonella*, *Listeria*, and *E.coli*.³⁰

The United Nations Food & Agriculture Organization (FAO) identifies factory farming as a serious threat to the environment and to public health.³¹ The American Public Health Association has called for a moratorium on the construction of new industrial farm animal facilities in the United States³² (please refer to the HSUS Reports on the environmental and public health consequences of factory farming for more information³³⁻³⁴. The single most effective weapon against factory farming is the reduction

Key Facts About Egg & Poultry Meat Consumption in India

- The number of eggs produced in India between 1972 and 2007 increased by nearly 4 times.³⁸
- The number of eggs consumed within India tripled between 1973 and 2003.⁴³
- Chicken meat production more than doubled between 1986 & 2000, and between 2000 & 2007.⁵⁴
- Chicken meat consumption almost tripled between 1993 and 2003, and continues to rise.⁶⁵

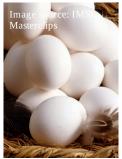
in consumer demand for eggs and chicken meat. The growing demand for animal products is simply not sustainable, given the increased pressures on agricultural land in India. Middle and upper class urban consumers need to be educated about the impact of meat and egg consumption on animals, the environment, and human health. Government agencies such as the National Institute for Nutrition, civil society groups, and educational institutions need to be engaged in disseminating information about the benefits of plant-based diets.

Egg Laying Hens - Industry Statistics

India is the 3rd largest producer of eggs in the world (46.17 billion eggs in 2005-06) and the growth rate for egg production was 6% between 1980 and 2000. Andhra Pradesh is the leading state for in egg production followed by Tamil Nadu, Punjab, Maharastra and West Bengal, which together produce 71% of the total.³⁵ The majority of the eggs are consumed domestically.³⁶ India exports shell eggs to the Persian Gulf and egg powder to the European Union and Japan, as well as large quantities of hatching eggs to Bangladesh, Singapore, Maldives, United Arab Emirates, and Saudi Arabia.³⁷

Egg Consumption

Egg consumption in India has increased dramatically over the past 30 years. The overall increase is being driven, not by a greater number of individuals who are eating eggs, but by higher individual consumption in the urban population,⁴⁰



with 75% of eggs being consumed in urban areas.⁴¹ Per capita consumption is significantly determined by average capita income,⁴² Per capita consumption of eggs in India is rising fast in regions where urbanization and rapid income growth are taking place.

A study published by the Anthropological Survey of India in 1994 found that older people were more likely to be vegetarian (eggs are not part of an Indian vegetarian diet). "The age structure of the Indian population indicates a large potential market for poultry in the years



to come," as 30% of the recorded population in 2000 were between the ages of 10 and 24.⁴⁴ Given the existing high population density and land scarcity within India, a growing demand can only be met by industrial egg production facilities that severely compromise animal welfare, as well as degrade the environment and jeopardize human health.

The egg industry has also started to advertise heavily. According to the Compound Feed Livestock Manufacturers' Association (CLFMA), branded, packaged, and labelled eggs are becoming very popular with consumers.⁴⁵ Organisations like the National Egg Coordination Committee conduct intensive promotion campaigns to increase egg consumption.⁴⁶ Labels such as "vegetarian eggs"⁴⁷, "bacteria-free"⁴⁸ are commonly seen on egg packages in supermarkets. These labels are currently unregulated.

Farm Animal Welfare

Focus – Indian Poultry Industry

There may be some opportunity to challenge these labels by filing a complaint under the Advertising Standards Council of India or alerting Consumer Education & Research Centre. Industry advertising can also be countered by consumer education on the part of animal protection organizations. Humane Society International (HSI) has an on-going publicity campaign educating consumers about battery cage egg production. HSI also works with leaders in the food retail industry, encouraging them to adopt cage-free egg procurement policies. In addition, HSI works directly with egg producers, introducing them to commercial scale cage-free housing systems for egg laying hens.

Farm Animal Welfare

Broilers - Industry Statistics

India's broiler industry produced 2.2 million tonnes of chicken meat in 2007⁴⁹, and boasts an annual growth rate of 12%. India is among the top five chicken meat producing countries in the world.⁵⁰ Between 1972 and 2007, the number of broiler chickens in Indian agriculture increased by more than 200 million⁵¹. The six leading broiler integrators are the Suguna Poultry Farm Limited, the Pioneer Poultry Group, Venkateshwara Hatcheries Private Limited, Godrej Agrovet Limited, the Skylark Group, and a joint venture of Japfa Comfeed International Pte Ltd of Singapore.⁵² Most of the poultry meat produced is consumed domestically with a very small proportion being exported to the Persian Gulf.⁵³ Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu account for about 60% of India's broiler chicken farming, and Namakkal, a district in Tamil Nadu, accounts for more than 30%.⁵⁵

Slaughter and processing

Ninety-eight percent of slaughter is handled by wholesalers, small retail shops, or individual households. Wholesalers process (de-feather, gut, behead) 25-35% of total chicken meat consumed, while most of the rest is done in retail shops or by the consumers, which may be due to consumer preferences for live birds and the lack of cold storage facilities to market chilled or frozen products.⁵⁶ The sanitary or welfare regulations for this process is typically not enforced. Poor sanitary standards are

common in India's poultry shops, and these chickens are housed in filthy conditions which



"Poor sanitary standards are common in India's poultry shops, and these chickens are housed in filthy conditions which breed germs and infection.

breed germs and infection. Despite local health regulations for licensing and inspection of slaughter facilities, effective enforcement of these regulations is lacking⁵⁷. Litigation may be required to bring about adequate enforcement of existing laws. In addition to litigation, enforcement of existing laws will depend upon vigilant civil society groups. There are serious human health concerns with live bird markets, as detailed in the HSUS report on live bird markets.⁵⁸ Consumers do not regard this as a health risk because they believe that the Indian style of cooking kills bacteria.⁵⁹

Within the shops, chickens are confined in cages, and often lack adequate feed and water during the day of sale/slaughter. The open and routine confinement and slaughter of these animals in public spaces desensitizes people to the suffering of chickens. The localized and unorganized nature of live markets makes regulation and enforcement of animal welfare laws in these settings challenging. Animal welfare advocates wishing to take on this challenge will likely face opposition from shop owners. The potentially violent opposition may be similar to that which animal advocates face when trying to shut down or reform illegal cow slaughterhouses. "Chilled meat is more acceptable to consumers than frozen meat, and growth in consumption of chilled meat may help facilitate the transition toward a frozen bird market." Currently consumers believe that fresh meat tastes better, and also that frozen meat may be spoiled, particularly given the irregular electricity supply across the country, and the lack of confidence regarding the date of freezing. "Most of the poultry integrators in southern, western, and eastern India are already marketing dressed and chilled products and have plans to expand sales" to hotels, restaurants, and fast-food establishments.⁶⁰

The modern poultry processing sector consists of 10-12 firms. Combined, they process around 12,000 tons of poultry annually. The mechanized plants use imported equipment, and are located near urban areas including Mumbai, Calcutta, Hyderabad, Bangalore, and Coimbatore. Their main customers are large restaurant chains such as McDonalds. They also export products to the Middle East. They are currently trying to receive certification for export to the United States.⁶¹ The poultry industry has also started to advertise heavily to change consumer perceptions by stressing hygiene and convenience.⁶² International organizations such as the U.S. Grains Council (USGC) are also assisting India's growing commercial poultry processing industry with their strategic consumer marketing efforts, as a growing poultry sector would provide a lucrative market for animal feed from the United States.⁶³

Institutional consumers, such as hotels, restaurants, and fast food establishments, will continue to expand chilled and frozen meat procurement. Also, integrators are now establishing a retail presence in existing shops and supermarkets as well as through their own shops. The growth in chicken meat consumption, regardless of whether the meat is sold through live markets or in the form of frozen meat, can only lead to further industrialization of the sector, resulting in greater suffering for animals and further environmental degradation.

Focus – Indian Poultry Industry

Broiler Chicken Consumption

The amount of chicken meat consumed in India has increased rapidly over the last decade. Although currently well below developing and developed country averages, levels of consumption are expected to rise in the years to come.⁶⁴ Chicken consumption is higher in urban areas than in rural areas, where both average incomes and the number of high-income consumers are the greatest. Urban consumers in the highest income quintile consume more than four times as much chicken meat as the urban consumers in the lowest quintile. Chicken meat is expected to rise in both urban and rural areas in the next decades.⁶⁶ As with eggs, this growth will be driven by increased urbanization, westernization of dietary choices, and choices of Indian people, a growing population of young people who are more likely to reject the vegetarian traditions of the older generations.⁶⁷ \Box

References

1.Food and Agriculture Organization of the United Nations. 2009 http://faostat.fao.org. Accessed July 20, 2010.

- 2. Government of India, Ministry of Agriculture, Department of Animal Husbandry & Dairying. 2006. Basic Animal Husbandry Statistics p. 31
- 3. Rahman, S.A., Walker, L., Ricketts, W., 2005. Global perspectives on animal welfare: Asia, the Far East and Oceania. Revue Scientifique et Technique de l'Office International des Epizooties 24,
- 597-612.

4. Food and Agriculture Organization of the United Nations. 2007 http://faostat.fao.org. Accessed April 1, 2010.

5. Indian Standard IS:7518 -1974

- 6. Animal Welfare Board of India. 2002. Functions of the Board. www.awbi.org/funct.htm. Accessed March 17, 2010.
- 7. Animal Welfare Board of India. 2002. Policy of the Animal Welfare Board of India. www.awbi.org/policy.htm. Accessed March 17, 2010.

8. The Prevention of Cruelty to Animals Act, 1960.

9. Department of Animal Husbandry, Dairying and Fisheries. 2007-8. Annual Report, p. 25.

10. Department of Animal Husbandry, Dairying and Fisheries. 2006. Basic Animal Husbandry Statistics, p.81

11.FAO, Poultry Sector Review - India Version of 1st December 2008. Tamil Nadu Agricultural University. 2008. agritech.tnau.ac.in/animal_husbandry/ani_chik_breeds%20of%20chicken.html. Accessed February 23, 2010.

12. Knowles TG. 1994. Handling and transport of spent hens. World's Poultry Science Journal 50(1):60-1.

13. Metheringham J. 2000. Disposal of day-old chicks-the way forward. World Poultry 16(11):25, 27. Balakrishnan V. 2004. Developments in the Indian feed and poultry industry and formulation ofrations based on local resources. In: Protein sources for the animal feed industry.

- 14. FAO Expert Consultation and Workshop, Bangkok, Thailand, 29 April-3 May 2002 (Rome, Italy: Food and Agriculture Organization of the United Nations, pp. 215-24).
- 15. Ramaswami, Bharat., Birthal ,P. S. and P.K. Joshi (2005) Efficiency and distribution in Contract Farming: The case of Indian Poultry growers http://www.isid. ac.in/~planning/workingpapers/dp05-01.pdf)
- 16. Fairoze Mohamed Nadeem, Achoth Lalith, K.K. Prasanna Rashmi, Tiongeo Marites M., Delgado Christopher L., Narrod Clare and Chengappa Padinjaranda G. (2006). Contract Farming of 17. 17.Milk and Poultry in India Project. Equitable Intensification of Market Oriented Smallholder Poultry Production in India through Contract Farming.

18. The Telegraph. 2007. Poultry forum takes wing. May www.telegraphindia.com/1070503/asp/northeast/story_7724836.asp. 1 June 2010

19. Ali, M. 2007. Farmers up the ante against contract farming in Kashmir. Greater Kashmir, May 15.

20. The Compound Feed Manufacturers Association (CLFMA) of India. 2005. Livestock Industry Report, pp. 15-6.

21. Mehta R and Nambiar RG. 2008. The poultry industry in India. In: Poultry in the 21st century: Avian influenza and beyond, International Poultry Conference, Bangkok, November 2007. (Rome, Italy: Food and Agriculture Organization of the United Nations, pp. 1-61).

22. Nierenberg D. 2005. Happier Meals: Rethinking the Global Meat Industry (Washington, DC: Worldwatch Institute, p.23.

- 23. Nelleman C, MacDevette M, Manders T, et al., United Nations Environment Programme. 2009. The environmental food crisis The environment's role in averting future food crises, p.26.
- 24. Smil, V. 2002. Worldwide transformation of diets, burdens of meat production and opportunities for novel food proteins. Enzyme and Microbial Technology 30:305-11.

25. Stockholm International Water Institute and International Water Management Institute. 2004. Water - More Nutrition Per Drop, p.21.

26. Livestock, Environment and Development. 2006. Livestock's long shadow: environmental issues and options.

27 Livestock, Environment and Development. 2006. Livestock's long shadow: environmental issues and options.

28. Rattanani J. 2006. India to see tremendous changes. World Poultry 22(6):10-2.

- 29. Greger M. 2007. The Human/Animal Interface: Emergence and Resurgence of Zoonotic Infectious Diseases. Critical Reviews in Microbiology 33:243-99
- 30 Delgado C, Rosegrant M, Steinfeld H, Ehui S and Courbois C. 1999. Livestock to 2020: The Next Food Revolution. (Washington, DC: International Food Policy Research Institute).

31 Livestock, Environment and Development. 2006. Livestock's long shadow: environmental issues and options.

32 American Public Health Association. 2003. Precautionary Moratorium on New Concentrated Animal Feed Operations. www.apha.org/advocacy/policy/policysearch/default.htm?id=1243.

Accessed April 29, 2010.

33. Environment: http://www.hsus.org/farm/resources/research/enviro/industrial_animal_ag_environment.html

34. Public Health: http://www.hsus.org/farm/resources/research/enviro/factory_farming_in_america.html

35. FAO, Poultry Sector Review - India Version of 1st December 2008 p 8

36. Food and Agriculture Organization of the United Nations. 2003. Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries (section 2.3).

www.fao.org/WAIRDOCS/LEAD/x6170e/x6170e09.htm. Accessed March 30, 2010.

37. Mehta R and Nambiar RG. 2008. The poultry industry in India. In: Poultry in the 21st century: Avian influenza and beyond, International Poultry Conference, Bangkok, November 2007. (Rome, Italy: Food and Agriculture Organization of the United Nations, pp. 1-61).

38. Food and Agriculture Organization of the United Nations. http://faostat.fao.org. Accessed April 1, 2010.

39. Food and Agriculture Organization of the United Nations. http://faostat.fao.org. Accessed April 1, 2010.

40. Mohanty S and Rajendran K. 2003. 2020 Vision for Indian Poultry Industry. International Journal of Poultry Science 2(2):139-43.

41. Ravikumar, K. 2006. Poultry farming in India and its future prospects. Food & Beverage News, November 18. www.fnbnews.com/article/detarchive.asp?articleid=19331§ionid=32. Accessed March 30, 2010.

42. Cranfield, J. A. L., Hertel, T. W., Eales, J. S. & Preckel, P.V. (1998) Changes in the structure of global food demand. Am. J. Agric. Econ. 80: 1042–1050.

43. Food and Agriculture Organization of the United Nations. http://faostat.fao.org. Accessed April 1, 2010.

44. Landes M, Persaud S, and Dyck J, comp. United States Department of Agriculture, Agriculture and Trade Reports. 2004. India's Poultry Sector: Development and Prospects (WRS-04-03), p.5. 45. Rattanani J. 2006. India to see tremendous changes. World Poultry 22(6):10-2.

46. National Egg Coordination Committee. The Beginning. http://e2necc.com/necc-beginning.html#objective. Accessed April 29, 2010. 47. Nerve 2007, Now '100 percent' vegetarian eggs http://www.nerve.in/news:253500119443 Accessed 20 July 2010

- 48. Nutraingredients, 2007 http://www.nutraingredients.com/Industry/Beauty-eggs-give-glimpse-to-pretty-future Accessed 20 July 2010
- 49. Food and Agriculture Organization of the United Nations. http://faostat.fao.org. Accessed April 1, 2010.
- 50. Department of Animal Husbandry, Dairying and Fisheries. 2007-8. Annual Report, p.25

51. Food and Agriculture Organization of the United Nations. http://faostat.fao.org. Accessed April 1, 2010.

52. Rattanani J. 2006. India to see tremendous changes. World Poultry 22(6):10-2.

53. Rattanani J. 2006. India to see tremendous changes. World Poultry 22(6):10-2.

54. Food and Agriculture Organization of the United Nations. http://faostat.fao.org. Accessed April 1, 2010.

55. Mehta R and Nambiar RG. 2008. The poultry industry in India. In: Poultry in the 21st century: Avian influenza and beyond, International Poultry Conference, Bangkok, November 2007. (Rome, Italy: Food and Agriculture Organization of the United Nations, pp. 1-61).

56. Landes M, Persaud S, and Dyck J, comp. United States Department of Agriculture, Agriculture and Trade Reports. 2004. India's Poultry Sector: Development and Prospects (WRS-04-03), p.19.

57. Landes M, Persaud S, and Dyck J, comp. United States Department of Agriculture, Agriculture and Trade Reports. 2004. India's Poultry Sector: Development and Prospects (WRS-04-03), p.19.

58. HSUS Report: Human Health Implications of U.S. Live Bird Markets and Avian Influenza. http://www.humanesociety.org/assets/pdfs/farm/HSUS-Human-Health-Report-on-U-S-Live-Bird-Marketsand-Avian-Influenza.pdf

59. Landes M, Persaud S, and Dyck J, comp. United States Department of Agriculture, Agriculture and Trade Reports. 2004. India's Poultry Sector: Development and Prospects (WRS-04-03), p.18.

60. Landes M, Persaud S, and Dyck J, comp. United States Department of Agriculture, Agriculture and Trade Reports. 2004. India's Poultry Sector: Development and Prospects (WRS-04-03), p.19. 61. Landes M, Persaud S, and Dyck J, comp. United States Department of Agriculture, Agriculture and Trade Reports. 2004. India's Poultry Sector: Development and Prospects (WRS-04-03), p.19.

62. Rattanani J. 2006. India to see tremendous changes. World Poultry 22(6):10-2.

63. Greateneds. 2008. US grain sector profits from growth in India. www.greateneds.com/news/us-grain-sector-profits- from-growth-in-india-id1555.html. Accessed April 30, 2010.

64. Rattanani J. 2006. India to see tremendous changes. World Poultry 22(6):10-2.

65. Food and Agriculture Organization of the United Nations. http://faostat.fao.org. Accessed April 1, 2010.

66. Mohanty S and Rajendran K. 2003. 2020 Vision for Indian Poultry Industry. International Journal of Poultry Science 2(2):139-43.

67. Rattanani J. 2006. India to see tremendous changes. World Poultry 22(6):10-2.

Equine Welfare

Nail free, Metal free, Removable Horseshoes Designed for Comfort & Better Protection From Hoof Ailments

Marquis Supergrip Boots for Horses

Designed by a Veterinarian, Dr. Helmut Marquis, the Marquis boot gives superior protection to the horses' hooves. It has been designed taking into consideration the horses' comfort. The Marquis supergrip boots have been developed using computer kinematography, to provide the comfort of a bare hoof and superior performance while riding. The hoof is held in place by air pumped into the chambers of the boot.

Unique features of the Marquis boot are that the boots give a very good grip for the hooves due to the air bag around the bulbs. Besides, the shoes can be easily removed when not needed and can be washed regularly. The sole is also interchangeable and additionally, every part of the boot can be replaced easily, if damaged. It's easy to use and gives superior comfort.

However, care needs to be taken while measuring the hoof size as the boots are best suited for oval hooves and also the pressure of the air bag needs to be carefully moderated and periodically checked as too much pressure can cause wounds on the bulbs of the hooves. The boots are sturdy and can be worn in a variety of different terrains. They are long lasting and available in a range of sizes and in two colors – black and fluorescent yellow, for better visibility in conditions of dim light.

The Marquis boot is in a class apart and is likely to offer excellent protection to the horses' hooves, besides helping to avoid many of the hoof related ailments and hoof and sole infections caused by metal horseshoes and nails in the soles. For more information, check out www.marquisboot.com.

How to Use the Marquis Superboot



Price: Quite expensive for working horses and horses in shelters but not for race horses used by the racing industry. Considering the large population of working equines, Indian manufacturers may consider contacting the Company and exploring manufacturing options to produce low-cost, Marquis boots to be worn by horses in developing countries. However, this should be done only after conducting a study to find out whether the boots are suitable for use by Indian horses under Indian climatic conditions and Indian terrain.

Note:The Animal Welfare Board of India gratefully acknowledges that the source of the images and pictorial guide showing how to use the Marquis boot and other product details have been obtained from http://www.marquisboot.com as well as online product reviews.

The People Behind India's Plastic Cow Project

In interviews with Ms Clementien Pauws Koenegras, President of Karuna Society for Animals and Nature and Shri Pradeep Nath, Founder of VSPCA, Animal Citizen gets to know about how the Plastic Cow Project came into being and the efforts being made by these vigilant, focused and determined Animal Rights Activists to protect India's street cows from the intense suffering and untimely death that awaits these helpless cows left

on the streets to fend from the garbage bins. Other Founding Members of India's Plastic Cow Project include, Ms Rukmini Sekar

and Mr Phil Wollen, Founder, Kindness Trust, Australia.

Awards that Karuna Society for Animals & Nature has received:

2004: Elisabeth Lewyt Award from North Shore Animal League America, for providing aid to the animals in the 2004 Tsunami.

2007: Venu Menon Special Organisation Award.

2008: Away Award, for extraordinary efforts, above and beyond expectation.

2012: Award from Sahiti Gagan Mahal Trust, Ananthpur district for exceptional contribution to the society in Ananthpur.



When did you feel the inner call to come to India and start a shelter and hospital for animals?

I came to India with my husband and son in 1995 to live with Sai Baba. Thanks to my husband's pension, we were able to do so without relying on anyone. As I have loved animals all my life and worked as a professional horseback riding teacher when I was young, it was only natural for me to see the suffering of the animals on the road and take action.

Karuna Society for Animals and Nature is located in Puttaparthi. What were the inspiring events in your life that drew you towards Sai Baba and Puttaparthi?

Most people seek spiritual guidance when they are facing difficulties in their life. So it was with me. When I came to Puttaparthi I wanted only to focus on Sai Baba and his allencompassing love. We lived very isolated for a few years, only

going for darshan and bhajans. I looked after my family and I started to take in sick dogs at my house and I also looked after some injured donkeys for which I had tied up with the local veterinary hospital. Sai Baba granted me three interviews and the third time, when a lady was complaining to Baba about the suffering of animals, he said, "She will look after them," looking at me.

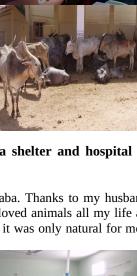
Tell us about the biggest challenges that you faced while the Plastic Cow Campaign was taking shape?

The biggest challenge was a mental one. After several cattle had died, some before and some after surgery, I became slowly and painfully aware of the largeness of the problem, not just rationally but very fundamentally. I needed courage to let the truth sink in and not to explain it away. In this process I became vegan and I never looked back. Nation wide, every single cow, bull and calf that you see on the road is full of plastic. You cannot see it from the outside so nobody is aware of what's happening inside. Imagine the suffering!! Week after week, doing the rumenotomies, (the surgical operations on the rumen, the first compartment of the four chambers in the stomach of the cow), there was not one single animal without plastic bags.

The removed plastic weighed mostly between 30-70 kgs. Our surgeons found out that before surgery, these animals could only eat only vegetable waste as they could not digest any fodder/ grass with a belly full of toxic plastic. The cattle also needed special post-operative care for several weeks. Some cows, already pregnant, delivered their calves safely after surgery. Having rescued these cattle from a horrible death, I realized that they could never go back to the road or to any owner. We knew they had to stay with us for life and after this suffering caused by the consumption of garbage and human indifference, we owed them at least that.

The Plastic Cow Campaign is sure to save the lives of thousands of cows all over the country if it is successfully replicated. Within the next few years, do you see this happening well for the Plastic Cow Campaign?

Ideally, the first step is to have surgeries for all the affected cattle. But, where can these surgeries be performed? Who will bring his cow or bull? And we sorely lack the facilities to do these thousands of surgeries. Most owners prefer slaughter. We received only stray, ownerless cattle from the roads from the Ananthpur Municipality. Rumenotomies can only be performed under hygienic and aseptic conditions in an operation theatre for large animals. This is only available in colleges but cattle rescue projects should have





Ms Clementien Pauw

Inspiration

"The first and foremost condition for the cows to be free of plastic is a nation wide total ban on plastic bags and a realistic garbage maintenance solution with recycling and composting and without any interface between animals and plastic waste." medical facilities including an experienced surgeon. The first and foremost condition for the cows to be free of plastic is a nation wide, total ban on plastic bags and a realistic garbage maintenance solution with recycling and composting and without any interface between animals and plastic waste.



Although the surgery is a relief for the individual animal, as a pilot project funded by Philip Wollen from the Kindness Trust, it was to show and expose the horrific suffering of the cow and how this animal, considered the "mother of the nation" has become a scavenger, a beggar, abused and finally slaughtered.

Surgery, when it can be done, is individual rescue but the country needs a structural solution.

It is through "The Plastic Cow" documentary, filmed by Kunal Vohra and funded by Philip Wollen, that we wanted to show this to the people in a very direct way. The question, asked in the film is," What are these animals doing on the road in the first place?" Stray cattle are a direct result of the over-production of milking cows for milk and meat. Male calves, abandoned bulls, dry cows, all end up on the road including the milking cows which have to fend for themselves as the owner doesn't feed them but continues to draw the milk.

Do you have a complete Project Plastic Cow Campaign template ready – in terms of presentation material, script for presentation and a guide book for the community – for outreach programs to be conducted by AWOs and NGOs?

An important part of the project is the Public Interest Litigation case filed in the Supreme Court in Delhi. Pradeep Nath, Rukmini Sekhar, and myself, plus two organisations; Karuna Society and VSPCA have filed this petition. We have filed the case as an animal rights issue. We are accusing the union Government of India of cruelty to animals and all the states are made respondents through the state animal husbandry departments.

Answers have to be given as to how this state of affairs could develop resulting in extreme cruelty and neglect of animals involved, not only the cows but also wildlife, marine life; all animals are affected. Only after looking into the root of the problem and demanding a nation-wide ban on plastic and implementation of already existing laws and municipality regulations, will an awareness programme make a difference.

Soon, we will send out the DVDs of the documentary in English and translations in Hindi and Telugu are on the way. We will send them to all relevant government and educational institutions and of course, to all AWOs and many other NGOs to be used in their programmes. While the film aims to create an emotional response to the problem, we also realize that we need absolute facts to back it up with numbers, figures and statistics. We are therefore working on a plan to add an informative Power-point presentation to

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the film and prepare an outreach programme to bring this problem to the awareness of the public with guidelines for improvements. For this we need more man/woman power and more funding.

Do you feel that if the municipal corporations and state governments would extend financial assistance for the Plastic Cow Campaign, this Project could be running on a much larger scale and with a much bigger impact?

If the municipalities and state governments would only do their job, one doesn't need the Plastic Cow Campaign. They should do what they are supposed to do, namely clean up the nation's garbage and not allow cattle to wander. They should implement the laws governing illegal dairies. Also, allowing cattle to forage for food in dustbins amounts to violation of the PCA Act, since eating left-over human kitchen waste is not natural food for cows. And what about fresh and clean drinking water which is the birthright of all sentient beings? Awareness programmes have little impact if the plastic bags are still produced and available, the garbage not controlled, excess animals produced and no action being taken against offenders.

Tell us about the Ahimsa Farm that Karuna Society for Animals and Nature has started?

The basic idea for our cattle rescue project and organic farm is the need for a new concept of gaushala which will not run on reproduction of cows for milk but only on by-products like bio-gas, compost, organic produce and Ayurvedic medicines like

distilled cow urine. Karuna started its organic produce project in 2001. Over time we rescued around 600 cattle from illegal transport and as we did not receive government support for the maintenance of our cattle, we had to find a way to be more self sufficient. Initially, with rescued buffaloes, we also sold milk products like cheese and curd but as the reproduction of animals continued without support, we knew that milk production was not the solution to maintain a cattle rescue project. Milk production leads inevitably to slaughter as male calves and unproductive animals cannot be maintained. All male and female buffaloes are still with us.

All male buffaloes in the herd are castrated and all females are sterilized. This in the only way to take the animals out of the "system".

The practical and financial consequences of cattle rescues are immense and the problems forced us to come up with a solution other then milk. Organic farming and the use of by-products as a contribution to the upkeep of the animals is a solution. No



milk means no slaughter. At the Ahimsa Farm, all the animals have a right to life and will stay with us for life. Only healthy local bulls can be given for care-taking to the local farmer under strict legal conditions. Karuna Society's agricultural land is now certified organic and we have registered a separate company called "Karuna Enterprises" for marketing of the products. We are still in the development stage and it will take several years more before we can actually expect to be self sufficient, if at all.



"At the Ahimsa Farm, all the animals have a right to life and will stay with us for life. Only healthy local bulls can be given for care-taking to the local farmer under strict legal conditions."

Inspiration

Do you feel empathy for the small dairy farmer who leaves his cows to eat garbage on the streets? How do you feel the small dairy farmer can be best supported? What do you feel would be sustainable alternative livelihood options that small dairy farmers can follow to support themselves so that they can look after the cows better?

Yes, I can feel for that dairy owner as he is part of a much bigger problem but it concerns only his own survival. However, my empathy is more for the millions of animals who are simply produced, processed and degraded to become industrial products for unthinking human consumption. The small farmer is best supported by leaving that profession completely and searching for alternative livelihoods. There are other people who have more knowledge about alternative career options.

Do you feel the concept of the "Open Dairy Farm" where the community starts monitoring the functioning of the small dairy farmer living in cities and who has 4 or 5 cows is practical and will work well?

Whatever improvement can be thought of, the million dollar question is always the same, "where do the unproductive cows and male calves go?" Milk cannot flow without slaughter. The only answer is to stop the reproduction of cows for milk and to inform the public why it has to be done.

How supportive has the local community been towards your efforts? Do you now see a very positive change in your community with dairy farmers being more responsible and taking better care of their cows?

There is no support from the local community as their milking cows are under the care of the local veterinary hospital with their government reproduction schemes. The villages have been flooded by exotic and cross-breed milking cows, whereas before, the farmers maintained Indian breeds of cattle for agriculture and little milk. The Animal Husbandry Departments and collective dairying have much more impact on the minds of farmers then our cattle rescue activities. The farmers want to believe in the milking as it is easy income, although the water level in this area is down to only 20%, fodder is not available and numerous cows go for slaughter or die of starvation in this drought prone area. Within a few years, the destruction will be complete and traditional Indian breeds of cattle for use in agriculture will be extinct.

Thank you for giving me the opportunity to speak on behalf of the Plastic Cow Team. The campaign has been started to address some of these issues.

Inspiration



The Plastic Cow Project at VSPCA

Describing the pathetic condition of the cattle, Shri Pradeep Nath, Founder of VSPCA says, "The cows and bulls wander in search of food and frequently scavenge at garbage dumps and open bins. Because the cows eat vegetable waste stuffed

in the garbage, their tummies get filled with toxic and indigestible plastic bags. Often, the cows and other animals have severely infected injuries due to ruptures and blockages, within the rumen, that occur mostly due to the presence of plastic bags and other objects like iron meshes and nails. This is causing great harm to the animals all over the country. Moreover, the plastic bags



are totally toxic in the stomach and the toxic metabolites produced that go into the milk can also adversely affect the milk that is consumed by human beings.

We have seen that among the four kinds of cattle rescues that we carry out at VSPCA, i.e. rescues of cattle from illegal slaughtering, illegal transportation, rescues of impounded cattle and cattle from accidents, all the cattle have plastic bags in their stomachs. The quantity of the plastic consumed is not so important, because even one single plastic bag can kill the cow. Most of the plastic that we see in the bellies of the cows is in those cattle who do have owners, but the owners



are leaving them to fend on garbage from the streets. Considering the magnitude of the problem, a few months ago, at Visakha Society for Protection and Care of Animals (VSPCA), we decided to start the Plastic Cow Project."

Talking about the "Plastic Cow Project" that VSPCA has started, Pradeep says, "Since the last three months, our team has

already performed 24 surgeries on cows that are suffering with the plastic bags. With two operations per week planned, we hope to do surgeries for 100 cows this

year. At the moment, it is only possible to do this surgery once a week. In addition to this, due to heavy rains, the surgeries that were being done regularly were stopped for a short while. However, I would like to add that for all emergencies, our team is always there to help the suffering animals. The amount of plastic and other objects in the stomachs of these cattle varies from 2 kg to 70 kg. Doing a rumenotomy is a very complex surgery and calls for a high degree of skill, good attention to asepsis, and a well equipped operation theatre specially designed for large animal surgeries. Most important, after removal, proper attention to post-operative care, medication and diet needs to be adhered to. At VSPCA, we have created special facilities to help our team to carry out this operation safely and successfully."

Regarding the action taken by the Plastic Cow Project Team in court to protect the cows and the environment, Mr Nath says, "VSPCA not only helps the animals directly, in addition to this, VSPCA is also fighting in the court for the protection of cows, other animals and the environment to achieve a total ban on plastic bags. Plastic waste not only harms the cows, the garbage disposed of along the coast is not only affecting the animals in the city but is also spilling out into the ocean. This is causing great harm to aquatic animals, like fish, sea turtles, dolphins and whales. Moreover, the dumping of plastic bags, polythene and other non-biodegradable materials also clogs the city drains. This year, VSPCA got a very positive judgement from the Supreme Court that it would consider a complete ban on the use of plastic in the interests of the animals and the environment. The final hearing is awaited." On the outreach front, Mr. Pradeep Nath says, "Education is the key to keeping our environment safe. In that context, VSPCA plans to do an outreach program for the Plastic Cow Project. At the moment we are raising awareness about this very serious issue by inviting local farmers to come and witness the surgeries and we also teach the authorities in civic bodies like municipalities about the horrible implications that improper disposal of garbage and rampant use of the plastic bags can cause to animal health and to the environment."

About Visakha SPCA

Founded by Animal Welfare Activist and Lawyer for Animal Rights, Shri Pradeep Kumar Nath in 1996, VSPCA, located in Visakhapatnam, Andhra Pradesh is home to over 1200 animals rescued from all types of abuse. VSPCA is a sanctuary for cows, dogs, cats, turtles, horses, buffaloes, many kinds of birds and other small animals. VSPCA works mainly in Visakhapatnam and its surrounding areas, as well as in a growing number of districts in Andhra Pradesh. At VSPCA, ABC surgeries are carried out daily on dogs and cats. VSPCA covers a wide range of animal welfare programmes, like the sea turtle protection programme, the Kindness Farm and cobra rescue programmes. Besides, the organization fights against illegal animal sacrifice, illegal animal transportation and illegal slaughtering. For his outstanding contributions to animal welfare. Shri Pradeep Nath has been honoured with several awards. Some of the awards that he has received include, the Karmaveer Puraskar award in 2010, Sri Jain Seva Sangh award in 2009, the Elisabeth Lewyt award in 2005, Winsome Constance Kindness Trust Gold Medal in 2004 and David Shepherd Wildlife Award in 2001.

Vets Beyond Borders in India

An Overview Of The Organization & Its Achievements

Dr. Soniya Chawan

Vet-Train Project Manager, India

Vets Beyond Borders



Dr. Catherine Schuetze, Founder, VBB Ms Mandy Lamkin **O'Donnell** meeting His Holiness, The Dalai Lama

Vets Beyond Borders is an Australia based, not-for-profit, organization established by Dr. Catherine Schuetze and other veterinary volunteers in 2003. Currently, most of VBB's work is focused in India as VBB's founder Dr. Catherine Schuetze is resident in India most of the time. Catherine has been a practising veterinarian for 14 years, specialising in Integrated or Holistic Veterinary medicine and acupuncture. She has lived and travelled extensively throughout Africa, Europe and Asia. From her personal experience, she feels strongly that education is the key to making lasting change in a society. Catherine feels passionately about the sanctity of all life and that all living beings, humans and animals deserve to live life free

Major Projects In India include:

- Project Vet-Train
- □ Sikkim Anti-Rabies & Animal
- Health Programme (SARAH)
- □ Ladakh Anti-Rabies & Dog
 - Management Project (LARDoM)
- Bylakuppe Anti-Rabies & Dog Management Project

from suffering. This is a large motivating force behind her commitment to Vets Beyond Borders and its work in local communities. Currently, Catherine is based in Dharamsala and takes care of VBB in the role of NGO Liaison Officer, India and prior to this, she served as the Executive Director of the Indian division of Vets Beyond Borders.

Other key people at Vets Beyond Borders are Ms Mandy Lamkin who takes care of Administration, Volunteer Co-ordination and Donor Relations for Vets Beyond Borders. Mandy has been actively involved in animal welfare projects in the Indian sub-continent for two decades. A versatile professional, Ms Mandy has worked in the not-for-profit sector in various roles, as a director, administrator, educator and fund-raiser. She also has a background in training and consulting in philanthropy and ethics in the corporate sector. She runs the secretariat and co-ordinates the volunteer

programme as well as oversees fund-raising and donor relations for VBB. Prior to joining VBB in December 2009, Dr. Jenny O'Donnell, VBB's Executive Officer, was working in small animal veterinary practice and providing volunteer veterinary services to the Illawarra RSPCA. The organization functions through a network of Veterinary Surgeons and senior faculty from internationally reputed Veterinary Colleges around the world who volunteer their time to share their surgical expertise and clinical skills to provide animal healthcare, especially in developing countries of the Asia and Pacific region.

Training Centres of Excellence

Vets Beyond Borders seeks to create a world of better health for animals and for people. The Training Programmes conducted are primarily in the domain of Animal Birth Control (ABC) surgery for street dogs. The Programmes are of excellent quality, with care being given to maintaining international standards of animal healthcare and welfare. Besides support from the AUSAid grant, projects executed by VBB in India are financially supported by the Fondation Brigitte Bardot. Vets Beyond Borders has efficiently executed humane ABC Training Programmes and Animal Welfare Programmes in the Pacific Islands, Bali, Sri Lanka, Vietnam and China. The organization has two long standing projects in Ladakh and Sikkim and another project that has been recently started is at Bylakuppe in Southern India. Besides working in India, VBB has an ongoing Veterinary Training Programme in China that was started in 2009 in collaboration with ACT Asia in Shenzhen and in Beijing.

The Sikkim Anti-Rabies and Animal Health Programme (SARAH) is a fine example of VBB's work in India demonstrating excellent team spirit and dedication that has encouraged active participation from the community and strong support from the State Government of Sikkim. Working in mountainous terrain like Sikkim and Ladakh can be extremely challenging. Braving tough climatic conditions, like freezing cold temperatures and strong mountain winds, and with very little access to resources and infrastructure, the VBB Team has been able to execute ABC Programmes very successfully in the state. Presently, the incidence of rabies in Sikkim has been significantly reduced and, the state is fast on its way to becoming India's first rabies free state.



Left to right: Dr Soniya Chawan, Dr David Gray, Dr John Teather, Dr Christine Empson, Dr Shams Ahmed and Dr Thinlay Bhutia.

Vets Beyond Borders Focuses On:

- Work with local governments and organizations to establish effective veterinary based programmes,
- Organizing for the clinical training of local veterinary personnel to build their skills,
- Coordinating with volunteer veterinarians and veterinary nurses to work on these programmes,
- Supply of much needed medications and surgical equipment,
- Facilitating the funding of buildings and important infrastructure such as kennels to hospitalize treated animals,
- Contributing to the development of wider programmes to address animal welfare and community health issues.

VBB India's Achievements

- Surgically sterilized over 30,000 street dogs preventing the birth of thousands of street dogs each year,
- Vaccinated over 65,000 dogs and cats against rabies,
- Trained over 320 local veterinary staff to improve their surgical skills and animal welfare knowledge,
- Provided care for thousands of animals who have never seen a Vet before and performed pain relieving and lifesaving procedures including fracture repair and cancer treatment,
- Contributed to developing kennels and infrastructure to hospitalize injured animals,
- Worked with governments in developing countries to implement humane alternatives to euthanizing or impounding stray dogs.







Training Centres of Excellence

Project Vet-Train was launched in India by Vets Beyond Borders in 2009 with two main objectives:

• To refine and develop the clinical skills of Indian Veterinary graduates and ancillary personnel,

• To improve and standardize the quality of Veterinary services provided by animal welfare groups in India.

The Pilot phase of Project Vet-Train's Training Programmes was conducted at the National Institute of Animal Welfare (NIAW), Ballabgarh, Haryana and was a collaborative initiative involving VBB, the AWBI and the Animal Welfare Division of the Ministry of Environment & Forests (MoEF), Government of India. During six successful training sessions from Feb-July 2009, a total of 178 Vets, Veterinary Assistants and Animal Handlers received training from VBB faculty. Since then, this excellent Training Programme supported by AWBI has been conducted regularly and many Veterinarians working in AWOs and Municipal Corporations have had the opportunity to refine their skills and



From right to left: Dr. Catherine Schuetze, VBB Founder and currently, VBB's NGO Liaison Officer, Maj. Gen. (Retd) Dr. R.M.Kharb, AVSM, Hon'ble Chairman, AWBI, Shri Anjani Kumar, Director, AWD, MoEF, Ms Jasjit Purewal, EC Member, AWBI, Dr. Helen Byrnes, Executive Officer, Indian Projects, VBB, Dr. Jenny' O Donnell, Executive Officer, VBB and Dr. Sonia Chawan, Project Manager, Project Vet-Train India.

national focus on proper implementation of ABC-AR Programme for street dogs in the country, Veterinarians, Programme Managers, Veterinary Assistants and Animal handlers need to be trained.

Project Vet-Train aims to train and accredit animal health professionals in collaboration with AWBI, gradually transferring capacity building skills and expertise to Indian public sector personnel. The animal health professionals who have attended the VBB Vet-Train Programme and met the assessment requirements, will meet the standards



for AWBI accreditation. The VBB Vet-Train Programme seeks to improve the skills and knowledge of Veterinarians, Veterinary Assistants, Project Managers and animal handlers in the areas directly relevant to an ABC-AR programme.

build their competence in ABC surgery to international

standards of excellence.

This project is a collaborative initiative funded by the Australian Government's AusAID Grant to the University of Queensland for conducting the Training

"This excellent Training Programme supported by AWBI has been conducted regularly and many Veterinarians working in AWOs & Municipal Corporations have had the opportunity to refine their skills and build their competence in ABC surgery to international standards of excellence."

Early this year, a Memorandum of Understanding (MOU) between the Animal Welfare Board of India (AWBI) and Vets Beyond Borders (VBB) was signed on 24th March 2012 in Delhi by Maj. Gen. (Retd) Dr. R. M. Kharb, AVSM, Hon'ble Chairman, AWBI and Dr. Helen Byrnes, Executive Officer, VBB India Projects.

Project Vet-Train offers Training Programmes to refine, update and improve the surgical, administrative and managerial skills of Veterinarians and Programme Managers engaged in ABC-AR Programs. Besides, dog handlers are introduced to humane dog catching techniques while Veterinary Assistants are given good training on veterinary nursing and welfare of the street dogs, before, during and after the surgery. In view of the enormous need to meet a mass

> Project Vet-Train India focuses on the transfer of capacity building skills and expertise to the Indian Veterinarians and allied personnel, addressing a primary development need for the implementation of successful and sustainable ABC-AR programmes.

Programmes in India through Project Vet-Train. Since the signing of the MOU, Project Vet-Train has been relaunched in regional centres in 2012. Project Vet-Train in India focuses on the transfer of capacity building skills and expertise to Indian Veterinarians and allied personnel, addressing a primary development

need for the implementation of successful and sustainable ABC-AR programmes.

<u>The Vet-Train Programme seeks to run Training courses for animal health professionals along with AWBI accreditation and certification by:</u>

- More efficient and effective surgical, veterinary care and programme management skills for mass neutering programmes and animal population control projects.
- Mass rabies vaccination programmes for dogs.
- More effective capture and management of rabies cases and aggressive dogs, instead of mass-culling programmes that have proven to be ineffective in many countries.
- Public education, awareness and acceptance of ABC-AR programmes and the benefits of veterinary intervention.
- Building the skills and capabilities of Indian Veterinarians, Programme Managers, Paravets and Animal Handlers to develop competencies to the level of being Master Trainers so that they can independently conduct ABC Training Programmes in regional centers that will operate alongside existing ABC-AR programmes and offer training for Veterinarians, Veterinary assistants, dog handlers and Project Managers.
- Providing excellent quality Training Programmes for a total of 300 personnel in the first year of operations, that are on par with the guidelines outlined in the Standard Operating Procedures (SOP) published by the Animal Welfare Board of India in 2009.
- Providing management and expertise to run Vet-Train courses at the VBB Regional training centres, including the Sikkim Animal Health and Anti-Rabies Project (SARAH).

The Vet-Train Programme will address the following India-specific needs:

- Provide effective solutions to limit the street dog population in cities providing guidance to Municipal Corporations in metros on the control of animal populations and rabid dogs that will greatly benefit public health.
- Public Sector Effectiveness building the capacity and linkages needed for conducting well coordinated ABC-AR programmes.
- Improved Service Delivery in Education and Health through education and training of animal health professionals and, improving their effectiveness and efficiency in carrying out ABC-AR programmes.
- Develop linkages and bilateral relations with academic institutions like the University of Queensland in training, research and development activities.

Outlined below is a brief synopsis of the ABC-AR Training Programmes currently being offered by Vets Beyond Borders in India

Training Programme for Veterinarians

This is a two week intensive capsule course in Small Animal Surgical Practice, as applicable to ABC-AR projects. The course includes 3-4 days of theory and labs followed by 10-12 days of surgical practice. The aim is for every Veterinarian who undergoes the Training Programme to develop surgical competency to confidently perform at least 20-25 surgeries during the training period. The course focuses on refining the anaesthetic and surgical protocols being followed in ABC surgery, with maximum care being given to maintenance of asepsis and humane welfare considerations, like ensuring that proper protocol is followed in the administration of anaesthetics, analgesics and antibiotics.



Training for Programme Managers

This Programme is a six day management training ¹ course for implementation and sustainable operation of ABC-AR programmes in accordance with AWBI's Guidelines outlined in the SOP. The Programme is ideally meant to train senior veterinarians or dedicated animal welfare personnel who are in a position to start ABC programs, follow protocols, manage veterinary teams / staff, organize fund raising and take care of administrative work involved in the programme.

The course focuses on refining the anaesthetic and surgical protocols being followed in ABC surgery, with maximum care being given to maintenance of asepsis and humane welfare considerations, like ensuring that proper protocol is followed in the administration of anaesthetics, analgesics & antibiotics.



Veterinary Assistants

Training Centres of Excellence

In this 14 day course, Veterinary Assistants are given intensive training in humane animal handling and small animal surgical nursing as applicable to ABC-AR projects. The course incorporates a practical emphasis with a firm basis in theory of animal welfare, maintenance of asepsis in the operation theatre, and humane animal handling.

Humane Animal Handling Course

In this 6 day course, theoretical and practical training is given on humane animal handling of street dog capture and restraint. The course is specifically designed for Municipal Dog Catchers who have the specific responsibility of catching street dogs for ABC-AR programmes as well as the capture of aggressive and/or suspected rabid animals.



| Jaipur – 2012-13 Tentative Dates | Draft schedule to be used as a guide only. For the exact dates & to confirm registration, please contact <u>secretariat@vetsbeyondborders.org</u> Level 3, 40 Gloucester St, THE ROCKS NSW 2000 Australia. Tel + 61 2 8003 3691 Fax: +61 2 9261 4033 |
|---|--|
| ABC 2 | 8 th October - 21 st October, 2012 |
| ABC 3 | 5 th November -10 th November, 2012 |
| ABC 4 | 19 th November - 2 nd December, 2012 |
| ABC 5 | 3 rd December - 8 th December, 2012 |
| ABC 6 | 10 th December - 23 rd December, 2012 |
| ABC 7 | 31 st December -13 th January, 2013 |
| ABC 8 | 14 th January - 27 th January, 2013 |
| ABC 9 | 4 th February - 17 th February 2013 |
| ABC 10 | 18th February - 3rd March 2013 |
| ABC 11 | 4 th March - 9 th March 2013 |
| ABC 12 | 11 th March - 24 th March 2013 |
| ABC 13 | 1 st April - 13 th April 2013 |
| ABC 14 | 15 th April - 28 th April 2013 |
| | |
| Sikkim | 2012-13 |
| ABC 4 | 28 th October- 10 th November 2012 |
| ABC 5 | 25 th November - 8 th December 2012 |
| ABC 6 | 17 th March - 30 th March 2013 |

14th April – 27th April 2013

VBB Needs Volunteer Vet Trainers!

Veterinary Trainers are urgently needed to assist with Vet-Train courses - Two-week courses starting September 2012 until May 2013 .

Following the success of our Vet-Train Programmes in Sikkim and Delhi in 2012, we are expanding, with a new regional Training Centre in Rajasthan's colourful capital, Jaipur.

English speaking, experienced volunteer Veterinarians are required to assist in delivering Vet-Train, an Animal Birth Control-Anti-Rabies (ABC-AR) Training Programme, developed with the support of the Animal Welfare Board of India (AWBI).

Successful applicants will deliver lectures and supervise surgical sessions, using standardised Animal Birth Control and Anti-Rabies (ABC-AR) protocols and humane animal handling methods. Classes are small and the trainees are very enthusiastic to learn new skills. Each course runs for 14 days. Training materials are provided and lodgings and some meals are provided on site.

Rajasthan, the Land of Kings, is is well known for its exquisite architecture - palaces and fortresses, lakes, temples and beautiful art, music and ballads, and great traditions of valour and courage.

This is a wonderful opportunity to combine a visit to one of India's most exotic tourist meccas with a very rewarding, perhaps lifechanging volunteering experience. It may be possible to combine Vet-Train with active project work in the field in one of our 3 programmes: SARAH Sikkim, Ladakh or Bylakuppe.

Be dazzled, be inspired, make a difference. You will never forget it!

For more information please visit our website at : http://www.vetsbeyondborders.org/our-projects/vbb-vet-train/.

For general details on volunteering with Vets Beyond Borders, please read the information at:http://www.vetsbeyondborders.org/ how-you-can-help/volunteer/

Then, please register your application to volunteer at this same section. If you have further enquiries please contact us via this link: http://www.vetsbeyondborders.org/contact-us/

ABC 7

"We Came As Vets, We Leave As Surgeons" Training Indian Vets on Quality ABC-AR



Dr. Ilona Otter has been running a very successful ABC/AR Training Programme in Aravankadu in the Nilgiris for the past two years. Animal Citizen caught up with Dr. Ilona Otter, Clinical Director of the International Training Centre of Worldwide Veterinary Services, Ooty to get to know about her experiences of what it's been like to run the Programme, the challenges she has faced and her guidance for the success of this Programme in India.

How has the response been to the ABC/AR Training Programmes that you have been conducting at WVS-ITC?

Response has been very good. Especially, the Kerala Veterinary Association has responded well and through their initiative, government employed veterinarians from all districts in Kerala are being trained in ABC surgery.

What percentage of the participants apply the skills that they have learnt?

The clinical skills development training we provide will benefit the participants in all fields of clinical veterinary medicine and we also continue to provide lots of useful clinical information to our past participants via our emailing list. We get feedback from our past participants through email and Face-book. They keep in touch by sending enquiries regarding clinical cases, ABCprogramme equipment and supplies, rabies vaccination camps and so on.

How many Training Programmes has WVS-ITC conducted so far?



At the time of this interview, we are running the

ABC surgery course number 24 since the inauguration of ITC in September 2010. In addition, we have conducted some 'ITC-Specials', like Farm Animal Medicine, Surgery and Diagnostics, Small Animal Infectious Diseases and Shelter Management, Radiology & Neurology and Small Animal Anaesthesia and Analgesia.

How do you find the response from Veterinarians participating in the Course, in terms of enhancement or refinement of surgical skills, adherence to maintaining the quality of asepsis as well as humane considerations? Do you find the majority of participants very cooperative or do you observe that there is resistance to learning and applying new skills among specific groups? If so, would you like to identify specific groups and elaborate on possible reasons for unwillingness to learn and change?

Meet the Trainer



I have not met with anybody who is unwilling to learn. All the younger Vets appreciate the way we operate, are very enthusiastic and learn easily. Just today, one young Veterinary Doctor from Andhra Pradesh told me "Now only I can see what being a Veterinarian can be like!". Senior colleagues have more difficulties in changing their habits, but also from them we get feedback statements like; "we came here as Veterinarians and we leave as Surgeons".

Any innovative ideas / strategies that you wish to share, on ways to ensure lasting and positive human behaviour change? - The reason this question is being asked is that, because despite providing access to quality Training Programmes,

a common concern central to some of the ABC-AR Programmes running in the country, is lack of humane animal welfare considerations, poor application of surgical skills and poor levels of asepsis?

There are still many ABC charities around India whose Vets have not participated in any of the available training programmes. It should be made compulsory, even though a Vet may have worked previously in an ABC-program for many years - refreshing and updating of skills is never wasted!

Also, one crucial factor is how well the management understands and appreciates the surgical standards. A common problem in ABC-programmes is the management who does not want money to be spent in quality supplies in adequate quantities or who doesn't care about the daily matters of the ABC Center, leaving everything to the Vets to handle. For example, autoclave is of no use if the instruments are taken from there with bare hands. Sterile gloves for the doctor are of no use if he has to maintain anaesthesia by IVinjections at the same time as he or she is doing surgery. Any surgical clothing on the doctor is of no use if there is no sterile field provided by a sterile, surgical drape. Any number of post-operative days in the



"Sterile gloves for the doctor are for no use if he has to maintain anaesthesia by IV injections at the same time that he or she is doing surgery. Any surgical clothing on the doctor is of no use if there is no sterile field provided by a sterile, surgical drape. Any number of post-operative days in the kennels does not excuse the use of poor

quality or non sterile suture materials or

inappropriate suturing technique if post-operative

wound opening is a common problem."

kennels does not excuse the use of poor quality or use of non sterile suture materials or inappropriate suturing technique, that is seen especially if post-operative wound opening occurs often in an ABC Centre.

I highly recommend any ABC Clinic to follow a wound scoring system for a sample of 100-300 dogs to see how good the results actually are. Documenting good results or improved results should increase the motivation of the full team to continue working well. But if results are low, then the protocols should be carefully assessed and improved. In a clean, elective surgery like spay/neuter, performed by competent surgeons, the post-operative infection rate should be 0-4%. In other words, if regularly, more than 4 dogs out of 100 operated dogs

require post-operative antibiotics because of surgical wound infection, then something is wrong in the protocol. We need to have good standards for the sake of the welfare of the animals and its not only for the stray animals, who don't have owners complaining about their possible complications.

Meet the Trainer

Also, we need to be so good that when required, we can happily, following the same protocols as for stray dog ABC, neuter the expensive pedigree pet dogs from our area, being confident that we can let those dogs go home with their owners, on the same day after the surgery without bandages or post-operative antibiotics. A good indicator of a well-run ABC Centre and the success of its outreach or educational message is the willingness of owners.

success of its outreach or educational message is the willingness of owners to voluntarily bring their pet dogs for spay/neuter.

Has your Centre been doing follow-up studies to estimate what percentage of Veterinarians, Veterinary Assistants, Dog-catchers and Programme Managers are applying the skills that they have learnt during the Training Programme?

No, we have not been able to carry out proper surveys but like I mentioned before, the skills development of ITC Training Programmes

benefits all Veterinarians who are involved with clinical practice. This year, we announced an "ITC Case Challenge" for our past participants. The idea is that they will document properly any case that they have treated successfully and where they feel that something in the approach they took to treat the case had to do with what they had learned in ITC and that that made a positive difference in the outcome. I am looking forward to receiving these Case studies that will then be given to a panel of

experts to judge and choose the best. Many of our past participants are Government employed Vets who are willing to push their higher-ups to start ABC Programmes, especially in Kerala.

Currently, both humane castration of bulls and ABC surgery is not a regular part of the under-graduate veterinary

curriculum in the country. Do you feel that there's an urgent need to include this surgical training as an essential skill to be taught to all final year veterinary students in the country?

Yes. Absolutely. Humane castration of bulls, using sedatives, humane restraint, non-steroidal anti-inflammatory drugs as well as local analgesia, is a very important skill for all large animal veterinarians and as such, a relatively basic skill that could be well included in the B.V.Sc. & A.H. curriculum.

The Animal Husbandry Departments all over India have ensured that there are Veterinarians in every corner of the country. If only this excellent, existing network of Veterinarians could be empowered to perform humane bull castrations and spay/neuter surgeries of dogs with excellent conditions of anaesthesia, analgesia and asepsis being maintained, it would mean a great leap of improvement in animal welfare.

In rural villages, many of the free roaming dogs belong to people and therefore can be brought in by the owners for spay/neuter, avoiding the obstacle of no trained dog catchers. The skills gained and applied in these areas would reflect in so many other areas and would thus lead to improving the standards of treatment, and therefore improving the overall welfare of the animals. "If regularly, more than four dogs out of 100 operated, require post-operative antibiotics because of surgical wound infections, then something is wrong in the protocol."

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Do you feel that if all the veterinary students in the country who are doing their internship had at least 12 weeks of compulsory participation to assist in ABC-AR Programmes, it would make a huge difference to the overall outcome of the ABC/AR Programme in the country?

Yes. But only if they would get to assist in ABC Programmes where high quality is maintained and demanded. Many young Vets learn their practical skills from their seniors (who have learnt them from their seniors, and they from their seniors and so on), without questioning them. Even though they have learnt the correct theory in college, they don't see the contradiction between theory and some practices. In ITC, we are very much willing to open our doors to these interns, providing the colleges agree to it. I believe that even 2-4 weeks of their total internship time spent in an ABC-Training Programme can make a major difference over time.

Meet the Trainer

Tell us about the outreach programmes that WVS-ITC conducts and how has the response from the community been?

We have focused on the 'door-to-door' rabies vaccination programs in areas outside the Nilgiris district, for example in Erode, Tirupur, Dindigul and the Tibetan settlement in Kollegal, Karnataka. In these areas we have worked either with the local municipality/panchayat administration or with local NGOs, going literally from door to door in the lower income residential areas and slums, vaccinating on an average 200 dogs per day. The response has been very good. People are eager to hear about rabies and its prevention as most people in these areas do not have even the basic knowledge of this disease.



Tell us about IPAN's major achievements in the field of humane farm animal welfare and wildlife conservation?

Wildlife: IPAN's presence in the Mudumalai area has stopped all small wild animal (hare, spotted deer, sambar) hunting. We are the eyes and ears for any poisoning of wild animals in the area, actively reporting to the officials and the media.

Farm Animal Welfare: IPAN has treated thousands of farm animals for emergencies and for preventive medicine, conducted farmer training programs, humanely castrated bulls with sedatives and proper analgesia many years before it became compulsory in India to show the farmers the benefits of the humane way. We have also very actively campaigned

against the illegal cattle transport through the Mudumalai Wildlife Sanctuary and exposed it. Due to this effective campaign, the DGP of police gave an undertaking that the animal transport rules will be obeyed when cattle are transported through the wildlife sanctuaries. Because of the strict rules, the cattle butchers stopped transporting cattle through the Mudumalai Wildlife Sanctuary.

"Animal owners have high expectations from vets and they can call any time of the night to attend an emergency.

I remember one night when I was called at 9 pm to attend a sick cow 50 km away. I drove to the farm, treated the cow and drove back. At midnight I got a call from another farm in that same village, 50 km away - had no choice but to drive there again."

Would you like to share with us about how your experience has been working in India, in contrast to working in Finland?

In a countryside practice in Finland I was often quite alone; doing everything from answering the telephone to cleaning instruments to driving to the farms, treating animals, ordering medicines, testing mastitis milk samples and doing accounts by myself. This was a typical setting for a rural mixed animal practice in Finland.

Lunch was often a sandwich that I ate in my car while driving to the next farm. Daily kilometres sat in a car could easily exceed 100 km/day, every day. Animal owners have high expectations from Vets and they can call any time of the night to attend an emergency. I remember one night when I was called at 9 pm to attend a sick cow 50 km away. I drove to the farm, treated the cow and drove back. At midnight I got a call from another farm in that same village, 50 km away - had no choice but to drive there again. One early morning when I was



"We have also very actively campaigned against the illegal cattle transport through the Mudumalai Wildlife Sanctuary and exposed it. As a result of this effective campaign, the DGP of police gave an undertaking that the animal transport rules will be obeyed when cattle are transported through the wildlife sanctuaries. Because of the strict rules the cattle butchers stopped transporting cattle through the Mudumalai Wildlife Sanctuary."

returning from a farm where I had done C-section to a cow at midnight, I had to stop by the side of the road to sleep in the car for an hour before I dared to continue to drive to the clinic. Small animal owners are sometimes unnecessarily worried; I've got a call after midnight from a dog owner who was concerned over her pets' well-being because she had washed the dog a week ago with her own apple shampoo that was especially not meant for dogs.

Meet the Trainer

In India, my work is so much more about being with other people as well and I enjoy that. I work as a part of an organisation and a team and I feel the connection "Animal Welfare means Human Welfare" very concretely here. Living in rural India has given me the opportunity to learn and appreciate the very close interrelationships that there are between humans and animals. To see cows that literally live as a part of the family in a barn that is directly attached to the house, to see women collecting cow dung from roadsides with their bare hands to make a living, to have children bringing their chickens for vaccination, to teach donkey owners why they should have their donkeys vaccinated and de-wormed, to teach women self-help-groups about proper first aid in calf diarrhoea, to keep vaccinating dogs to prevent human rabies deaths and, to empower veterinarians through skills development, inspiration and advice are all very strong experiences that keep me motivated to carry on.

In Finland, a lot of the veterinary attention goes nowadays to the management and environmental conditions of different animal species kept in various systems. In India, the focus is still on 'giving injections' and less attention and understanding is given to disease management and prevention -

whether in livestock production systems or in a stable with recreational horses or in a dog shelter.

What is your advice to young Vets and Animal Welfare Organizations who are starting out newly in the field?

Young Vets: Remember that learning is a lifelong process that does not end on your college graduation day. Be open minded and active, search for information from continuous professional development courses, quality books and good websites. Don't be ashamed to ask advice from other colleagues.

Remember that your responsibility is primarily to be an advocate for animal health and welfare with a marked role in many public health matters as well - remember to take note of these



Dr. Ilona Otter with husband Mr Nigel Otter, Managing Trustee, IPAN and her children.

points in all your actions and decisions. And finally, learn to spay and keep spaying - it is the best thing that a Vet can do for the welfare of dogs!

New AWOs: If your main focus is dogs and you don't yet have much funding, start by conducting door-to-door rabies vaccination campaigns. You will get good coverage and publicity for your work and it is less burdening financially than trying to establish an ABC Centre, with all its running and maintenance costs. Moreover, vaccinating dogs against rabies and so preventing human rabies deaths is the key factor to changing the attitudes of the general

public towards dogs.

Please tell us about the rural development programs that IPAN conducts?

We have done some farmer and women self help group training programs, emphasizing especially the importance of preventive medicine (timely FMD / BQ/ Newcastle vaccinations) and correct first aid in cases of traumatic wounds and diarrhoea. We have built water troughs for village cattle so that they would have better access to water during dry season.

How does WVS-ITC dispose off surgical/hospital waste and How is the awareness about zero-waste in Ooty?

We separate sharps from the other waste and hand it all over to the municipality garbage dump. I am not aware of a zero waste movement in Ooty. Certain areas have door-to- door household garbage collection. \Box



Young Achievers

Spotlight

Guardian Angel to Bengaluru's Homeless Street Pups



Achala is just 27 and she already has over a dozen years of experience in doing one of the toughest jobs in Animal Welfare Work, that of finding thousands of Caring Homes for street pups. In this interview, Achala tells Animal Citizen how she got started on her mission and how she's achieved what may seem like a very difficult task to many.

Tell us about how you started Let's Live Together?

I'm a graphic designer by profession. I have been an Animal Welfare Activist since the past twelve years and a Vegan since the last 9 years. While volunteering with many animal welfare groups I rescued, fostered and homed hundreds of homeless puppies by

I created

"Let's Live Together"

as my Final year

graduation project,

that has now became

a "real life project"

myself.

Since the cause has been close to my heart, I created "Let's Live Together" as my Final year graduation project, that has now became a '**Real Life Project'.**

I got "Let's Live Together" registered as an animal protection organization on April 12^{th,} 2009. Project '**Life on the Street'**, portrays 'The life of homeless Indian dogs on the street' and promotes the adoption of Indian puppies, rather than buying pure breed dogs!

The kind of challenges that you faced in the first year of running your organization?

Let's Live Together has been a '**life changing**', meaningful dream, come true. It surely has been a struggle to come this far, but I'm glad I followed my dream.... Let's Live Together isn't an overnight reality, its twelve years of my life into animal welfare work. Let's Live Together is twelve years of my time, effort, passion and commitment put together. In the first year of running my organization, there were a lot of challenges that came my way.

Animal Citizen, July-September, 2012

Young Achievers

Spotlight

I quit my campus job and took Let's Live Together as my full-time profession. I was quite broke and borrowed money from my mother to set up Let's Live Together. I used



Dr. B. Vijavakumari, Founder President of Let's Live Together

that money to make the first batch of merchandise for Let's Live Together. She granted me a room at home with an outlet, that still remains Let's Live Together's Office.

From handling the helpline number, fostering puppies, getting permissions for conducting camps, arranging for the camp, packing and unpacking for camps, arranging for rescuers and adopters, coordinating with volunteers, adoption counselling, most importantly, cleaning up after events, media work, social marketing and most definitely designing banners, posters, calendars, adoption forms, putting up stalls all over to raise funds for the organization, I did everything single handedly...

I always strived to maintain consistency in my work and that made my job even more tedious.

My struggle alone, helped me grow much stronger as a person, over the years with Let's Live Together. My biggest 'strength', time and again has been my mother... who helped me hold on.

Apart from dealing with the outside world and trying to convince them that I was doing right, convincing myself to hold on



was tougher because it took quite some time before I could see change. "Change in people's attitude and action". Change doesn't happen overnight. Passion, Vision, Intention, Hard work, Commitment and Consistency, all things put together for something worth

while makes change happen. I learnt this over time.

My struggle alone, helped me grow much stronger as a person, over the years with Let's Live Together. My biggest 'strength', time and again has been my mother... who helped me hold on.

Tell us about the people who supported you and how important it is that people who want to start an initiative like this need to identify good mentors and organizations in their community who will come forward to support them?

"Collaboration is the key for effective impact on the cause. Focusing on one issue and collaborating with other organizations to deal with other issues, helps in scaling up the quality of work."

My mom, Dr. B. Vijayakumari the Founder President of Let's Live Together, an Ayurvedic Doctor by profession is an alternative medical practitioner. She treats all the animals that come to Let's Live Together, apart from her alternative therapy for pet dogs. Thanks to my mother's tremendous support through and through, I am living my dreams, today.

It truly wouldn't have been possible to get anywhere close to where I am, without my mother. She is my greatest mentor.

Having the right mentors to boost you up and guide you makes a lot of difference in starting an initiative like Let's Live Together.

Achala has received several awards for her efforts. Notable among them are:

- The Young Achievers Award by The Brigade Group & Rotary Bengaluru, Midtown on Nov 20th 2010.
- N.K Pillai Foundation award by Center for Social Initiative Management (CSIM), Bengaluru and Fellowship for the year - 2010 -2011.
- Fun, Fearless Female Award by Cosmopolitan Magazine on March 5th 2011 in Mumbai.
- The Nava Kiran award for Outstanding women of the state -Award by the Women's International Network on March 6th 2011 in Bengaluru.

Spotlight

Young Achievers

Would you like to share with our readers about how you have built a network of volunteers over the years and the kind of support that they provide?

Every bit of help can make a difference in the lives of those who are less fortunate. Volunteer management is a huge task by itself. Volunteers register with us and then we get in touch with them when we need them.

It is important to filter volunteers and allot them tasks according to their interests, skills and preferences. Volunteers are extremely essential and have been a big support for Let's Live Together.

Tell us how you have made your organization a self-sustaining initiative?

I use my skills as a photographer and a graphic designer for my passion for animals to design calendars, mugs, stickers, greeting cards, bookmarks and carry bags for Let's Live Together and sell them.

This money raised has come a long way in setting up Let's Live Together. The funds raised through the merchandise helps strengthen Lets Live Together's 'Foster System' which will in turn help scale up on the quantity of rescues as well as the quality of fostering care and medical care provided to the rescued homeless puppies

The kind of media support that you get and how you have built it up over the years?

The initiative has to be innovative and interesting for the media to cover it. Consistency of good work is the key I would say.

What steps people who want to do a similar initiative in this way should take?

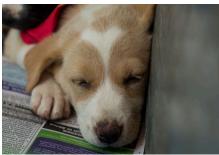
People who would want to start a similar initiative, need to be self-driven, socially motivated individuals who can discover their innate capabilities, enhance them to transform their vision into action and launch their own social initiatives. Take up an issue that needs attention and one where no other NGO is working on, only then all the energy and resources used is really worth it.













"Develop a realistic plan. Believe in You. Spot opportunities. Take risks. Implement your ideas. Develop persistence." □



All elephants belong in the forests. However, the unfortunate reality is that in many parts of India, elephants are kept in captivity, and especially in temples and other religious institutions. The training methods used involve a great deal of cruelty to these beautiful and intelligent animals. In this interview

Dr. Andrew McLean, Director of the Australian Equine Behaviour Centre and Senior Vice-President, International Society for Equitation Science (ISES) shares with Animal Citizen how the same principles of operant conditioning for training horses can be applied to train elephants gently.

To help mahouts learn how to train elephants humanely,

Dr. McLean has started the HELP (Human Elephant Learning Program) Foundation.

You are an internationally recognized trainer, training horses for over 25 years. Tell us about your childhood? Who were your mentors?

When I was a child, we moved from Victoria in South-Eastern Australia to King Island, situated between Tasmania and mainland Australia. It is a wild island, lashed by strong winds, surrounded by rough seas and with lots of wildlife. With my friends, I rode horses bareback (without saddles) every night after school and chased kangaroos and explored the environment. Those experiences taught me good riding skills and further developed in me a love for wildlife. I had a horse called Sam who was born to a feral King Island mare, and Sam was my great companion. Together, we went to Tasmania when I went to university there, and I began a show jumping career with him. Although his father was a Standardbred Pacer, Sam could really jump. He never touched fences because on King Island we jumped wire fences. So, he won many show jumping titles for me. When I went eventing (horse trials over cross-country) however, I got help from a good teacher, a Hungarian ex-cavalry man by the name of Captain Harry Sanna. He trained me in dressage, and helped me train my first horse to Advanced stage in Eventing (Olympic level back then). Both my parents rode horses in dressage and jumping competitions when they were young, my mother winning many of the biggest riding competitions in Australia. My mother especially was a natural animal trainer, and in fact I think she saw no difference between training animals and training children! She insisted that every animal I had (I had a menagerie of pigeons, ferrets, ducks, dogs, horses, parrots) had to be trained to do things, as she believed that you cannot have a good relationship with an animal, unless you gave it some communication skills with people.

Captive Elephant Welfare

My grandmother was my biggest mentor. She was a tiny person, not even 5 feet tall. Yet, she was the strongest person I have ever known. She and my grandfather made their fortune in just seven years. In order to get money together to build the factory, he needed cash, so my grandmother proposed she should set up a news agency. This was in 1927 when women in Australia didn't work: they raised children and stayed at home. My grandmother had no intention of conforming to this. She rode her bicycle to the newspaper wholesaler, Gordon and Gotches, to ask them to sell her newspapers.

The Manager said to her "Now what makes you think that a woman could sell newspapers?" As quick as a flash, she leaned across to him and looked into his eyes and said "Now what makes you think I couldn't?" The Manager said, "That's the spirit!" and gave her the contract. Her news agency quickly grew and she bought the shop next door to make a library so people could peruse books before buying them. Then she bought another shop to sell records and eventually gramophones. She lived to be 106 and all her life, she was strong, feminine, and courageous. She quietly championed the rights of the oppressed in her quiet elegant way without violence. I adored her. She taught me to respect all people and to seek the best in them.



Insig

She taught me to believe in myself, and so I do and here I am. My childhood friend, Brett Thorn was also a very positive influence. He is very intelligent and I think he helped bring out the intelligence in me. He remains my best friend and we do a lot of things together such as paragliding and scuba diving. We give each other strength and courage. Good friends do that.

Tell us about the unique features of the Positive Learning Method for training Elephants that you follow?

The Positive Learning Method is based on a behaviourist approach known as Learning Theory: the science of learning processes. It is about using Operant Conditioning, (reward based training) and Classical conditioning (the training of cues by



association with known events / behaviours). The behaviours we require are installed in the training process one by one in a process known as shaping. As far as elephant training is concerned, these elements take the shape of using pressures that end up forming the cues of the mahout's toes on the elephant's ears for going forward and when used singly for turning, the cues

of the mahout's heels for stopping and reversing. These pressures are begun on the ground, and as soon as the elephant shows the lightest sign of doing the correct thing, we use food rewards (mainly palm sugar) to reinforce the behaviour. In order to ensure the elephant knows what the food is for, we use a secondary marker, ('Sabash' by voice) to tell the elephant that the behaviour was correct and will result in a food reward. Elephants

love food treats, and using the food treat makes it so easy to teach elephants. When we have these mobilities trained on the ground, we then habituate the elephant to having a rider on his back. Again, we do this very gradually so the animal is never afraid or surprised. We also use a lot of food rewards to facilitate this. Following this procedure, we now begin transferring these cues learnt on the ground to work whilst ridden. From here on, we simply develop the riding skills of forward, stop, turn and reverse.

We also train the elephants using food rewards via positive reinforcement to pick up objects with their trunks, culminating in training the elephant to take and give objects to the mahout on its back. We teach the elephants to sit, lie down and pick up feet as well as to open their mouths for medications. Using this operant procedure with a dominant use of positive

"We teach the elephants to sit, lie down and pick up feet as well as to open their mouths for medications. Using this operant procedure with a dominant use of positive reinforcement is by far the most powerful way to embed new behaviours and because there is no violence, the elephants see it as a kind of game"

reinforcement is by far the most powerful way to embed new behaviours and because there is no violence, the elephants see it as a kind of game. They are always pleased to see us each day! You don't need to dominate animals to teach them, you just need the skills to reinforce and repeat behaviours. That is what learning is about. That makes for safe elephants.

Captive Elephant Welfare

What are the positive and negative reinforcements that you use in your training programs when you train elephants?

The positive reinforcements are the use of secondary positives such as voice promises like saying, "Sabash!" immediately followed by primary positive reinforcers such as palm sugar. The negative reinforcers are the use of a stick to apply pressure to the elephant on the toe and then the front of his leg for stepping back, and on his hind leg for going forward. We use the gentlest pressure that results in the elephant moving, even if only a small amount. To teach the elephant to sit and then lie down, we simply hold his tough skin in our hands and tug it (works as a negative reinforcer) until he lowers his shoulder a centimetre. From there we ask for bigger amounts of lowering. We use pressure of the mahout's toes on the elephant's ears where the mahout normally presses and on the elephant's shoulders, again where the mahout normally presses. Our method is unique in that as soon as the elephant gives something like the correct answer, we switch to positive reinforcement.

Tell us about the different phases of learning that the elephants go through in your Training Programs?

We begin with operant conditioning using positive and negative reinforcement and then add cues by classical conditioning by placing the new cue in front of the older known cue (pressure). We 'shape' the responses until there are the results we desire by rewarding better and better results and ignoring incorrect behaviours. We habituate the elephants to the presence of the mahout as well as to new stimuli very gradually. Sometimes, we see negative punishment (which means that we remove things that the elephant desires if it gives persistently wrong answers). So, for example, one elephant got very keen on lying down



once he had learnt it and he would lie down for every command. So, when he got it wrong, we just turned and walked away. We removed our presence, which was punishing to the elephant. We never ever use positive punishment, which is giving the elephant pain through violence for incorrect behaviour.

Would you please share with our readers about how exactly you conduct the Training Programs and What kinds of commands do the elephants learn?

We try to involve as many of the elephant personnel as possible. I begin the Training Programme by giving a small lecture / talk to the mahouts explaining how elephants learn, and by quietly explaining to them that the elephant knows nothing of what we want from him and the important point is to train him carefully by 'setting up' the likelihood that he

will give the correct response and then rewarding it. This is repeated until the behaviour is consolidated. I explain to the mahout that it is not about being the boss or dominating. It is purely about rewarding what you want. If you use punishment, there are many unavoidable negative outcomes, and it makes enemies for life which can come back to haunt you later. The elephant develops a kind of post-traumatic stress due to the inescapable, uncontrollable and unpredictable violence and as statistics show, mahouts get killed. If you treat people and animals fairly and instead of resorting to the weapon, you build a bridge of friendship and trust, and you both win. Elephants are amazing animals and we are lucky to be given the opportunity to engage with them on this planet. They are the same as humans when they are treated with respect and dignity. The commands they learn are light pressure commands from the feet of the mahout for alterations in mobility, as well as many voice commands for mobility changes, for picking up and giving objects, for sitting, lying down, picking up feet and opening mouths for veterinary interventions. There are many, many commands that they learn and I haven't seen any limit to how many commands an elephant can learn.

On an average, what percentage of elephants learn to follow the commands well?

All of them learn to follow commands well, because all elephants like to avoid pressure and love food. The only difference is that some are faster to learn than others. Some need more practice, just like people. Some like doing some things like sitting and lying down and others really don't like doing those things that much at all. Some like to go too fast and some like to go too slow. Some are good at turning and some are slow to turn. I feel sure that many of these differences are to do with the elephant's bio-mechanics, the same way as it is with horses, but we have more research to do on this.

How do you handle difficult elephants? Elephants that are stubborn, aggressive or restless?

The differences between elephants in these traits are less when they are young because much of the so called 'difficult traits' are learned – that is, they result from mistakes made by people in communicating poorly with them, blaming them for their behaviour instead of looking in the mirror. It takes real strength to blame yourself but that is what trainers should do. Restless elephants are most likely confused elephants, stubborn ones are ones who are also confused – they have not been correctly reinforced for the right behaviour and maybe the behaviours they are asked to do are not preferred by the elephant so these take longer to consolidate. There are no bad elephants. The key is to set up good behaviours, and repeat frequently enough for the animal to want to do them and to be able to do them from the cue by habit.

Captive Elephant Welfare

You have conducted Workshops in Kerala and Gauhati in 2010? How has your experience been?

I have had tremendous support from the Wildlife Trust of India, and in particular from Dr. Vivek Menon. I imagine he is a mentor to many people around the world - he is truly a visionary. Dr. Ashraff has been of great intellectual support and Arjun Aranagote is also tireless in his efforts to make our programme succeed. So with all this support behind me, it really helps. Kaushik Barua thinks along the same lines as I do and has helped me in getting the message across to the mahouts and teachers in Assam. The people themselves amaze me, from the mahouts all the way through to the officials – they are all looking to help me make this successful. So, when you have enthusiastic mahouts, it seems

to me that if this fails then it will be my fault because every one else gives 110%.

Did the Mahouts welcome the new method of training and were eager to adopt this more humane method to train elephants?



Yes, this is what amazes me. In Nepal, the attitude is the same – they are keen to learn new information. I think because current elephant training is perhaps the most dangerous occupations. Besides, many elephants die as result of their interactions with

"The people themselves amaze me, from the mahouts all the way through to the officials – they are all looking to help me make this successful. So when you have enthusiastic mahouts, it seems to me that if this fails then it will be my fault because every one else gives 110%."

people during the early stages of training because violence seems to come naturally to people. Therefore, the mahouts are keen to learn new ways. It takes a little while for humans to drop their weapons. I have the same challenges with horse

people in the West but when they see the results of a more humane way not just in results but also in the effect it has on their life strategies and inner peace, of course people are keen to try what I teach them. I think also because I love India and Nepal because of what it gives to my inner self, and this shows in my Training Workshops and this gives people confidence. My aim is to build Mahout Schools in India and Nepal to more effectively teach students majoring in the biological sciences and

including veterinary science, the science of animal behaviour as well as animal health and husbandry. Hopefully, this will benefit the mahouts lives and their families. HELP is a not for profit company and we rely on donations. I am positive that this dream of starting a Mahout School will materialize soon with the support of philanthropists and organizations dedicated to the welfare of animals.

In Kerala, as also in other parts of the country, elephants are used in temple processions. Often, in such events, the noise produced by the musical instruments is very loud? The elephants are often made to stand long hours in



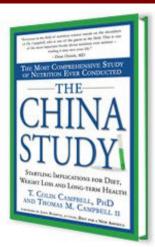
crowded spaces? Isn't this very stressful? What is your guidance to the owners of the temple elephants?

Sudden loud noises are difficult stimuli to habituate animals to, regardless of whether they are elephants or horses or any other being. However, I must say that when animals are clearly trained, that is when their world is controllable and predictable through commands from people that are consistent and well established with the use of positive reinforcement, scary stimuli are less scary, in fact much less scary. Good training gives animals confidence, just as it does with children. Obedient children who are rewarded and have had their behaviour properly shaped by loving parents, and where punishment is avoided become reliable and happy, strong citizens

Are you planning to write a special book about the natural behaviour and psychology of elephants titled "The Truth About Elephants", just like you have written, "The Truth About Horses"?

Yes, I do intend to write a similar book. I feel it is not so far away now, as I know so much more about elephants than I did. For me the funny thing is that I simply applied Learning Theory to elephants. Even in the earliest stage where I was beginning to get some good results, people were saying that I'm an 'Elephant whisperer', yet my experience with elephants was limited to perhaps just 50 hours. That just goes to show how powerful a knowledge, Learning Theory truly is. \Box

Book to Read



Quotes about the Book

Recent Media Reviews September 9, 2012: Voted as the most impactful health book on The Huffington Post: 30.9 million unique visitors per month. September 18, 2012, on page B11 in the U.S. edition of The Wall Street Journa l - Article titled, Would We Be Healthier With a Vegan Diet?

Frank Rhodes, Ph.D., President (1978-1995) Emeritus, Cornell University

"Colin Campbell's *The China Study* is an important book, and a highly readable one. With his son, Tom, Colin studies the relationship between diet and disease, and his conclusions are startling. The China Study is a story that needs to be heard."

Film To Watch Earthlings

Earthlings is a movie about the use of animals as pets, food, clothing, entertainment, and for scientific research.

The film is narrated by Joaquin Phoenix, features music by Moby, and was directed by Shaun Monson It is produced by Nation Earth.

Some awards that the film has won Best Documentary Feature, Artivist Film Festival, 2005. Best Content Award, Boston International Film Festival. Best Documentary Film, San Diego Film Festival.

To know more, check out www.earthlings.com

Robert C. Richardson, Ph.D., Nobel Prize Winner, Professor of Physics and Vice Provost of Research, Cornell University

"The China Study is the account of a ground-breaking research study that provides the answers long sought by physicians, scientists, and health-conscious readers. Based on painstaking investigations over many years, it unearths surprising answers to the most important nutritional questions of our time: What really causes cancer? How can we extend our lives? What will turn around the obesity epidemic? The China Study quickly and easily dispenses with fad diets, relying on solid and convincing evidence. Clearly and beautifully written by one of the world's most respected nutrition authorities, The China Study represents a major turning point in our understanding of health."

Neal Barnard, M.D., President, Physician's Committee for Responsible Medicine

"Everyone in the field of nutrition science stands on the shoulders of T. Colin Campbell, who is one of the giants in the field. This is one of the most important books about nutrition ever written -- reading it may save your life."

Dean Ornish, M.D. Founder & President, Preventive Medicine Research Institute & Clinical Professor of Medicine, University of California, San Francisco

"The China Study is the most convincing evidence yet on preventing heart disease, cancer and other Western diseases by dietary means. It is the book of choice both for economically developed countries and for countries undergoing rapid economical transition and lifestyle change."

Junshi Chen, M.D., Ph.D., Senior Research Professor, Institute of Nutrition and Food Safety, Chinese Center for Disease Control and Prevention

"All concerned with the obesity epidemic, their own health, and the staggering environmental and social impacts of the Western diet will find wise and practical solutions in Dr. Campbell's *The China Study*."

Robert Goodland, Lead Advisor on the Environment, The World Bank Group (1978-2001)

"Dr. Campbell's book, *The China Study* is a moving and insightful history of the struggle, still ongoing, to understand and explain the vital connection between our health and what we eat. Dr. Campbell knows this subject from the inside: he has pioneered the investigation of the diet-cancer link since the days of the seminal "China Study," the 1982 NAS report, "Diet, Nutrition, and Cancer," and American Institute for Cancer Research's expert panel report, "Food, Nutrition and the Prevention of Cancer: a Global Perspective". Consequently, he is able to illuminate every aspect of this question. Today, AICR advocates a predominantly plant-based diet for lower cancer risk because of the great work Dr. Campbell and just a few other visionaries began 25 years ago."

Marilyn Gentry, President, American Institute for Cancer Research

"The China Study is a well-documented analysis of the fallacies of the modern diet, lifestyle, and medicine and the quick fix approach that often fails. The lessons from China provide compelling rationale for a plant-based diet to promote health and reduce the risk of the diseases of affluence."

Sushma Palmer, Ph.D., Former Executive Director, Food and Nutrition Board, U.S. National Academy of Sciences

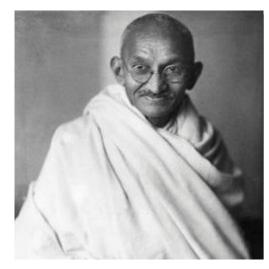
"The China Study is extraordinarily helpful, superbly written, and profoundly important. Dr. Campbell's work is revolutionary in its implications and spectacular in its clarity. I learned an immense amount from this brave and wise book. If you want to eat bacon and eggs for breakfast and then take cholesterol lowering medication, that's your right. But if you want to truly take charge of your health, read *The China Study* and do it soon! If you heed the counsel of this outstanding guide, your body will thank you every day for the rest of your life."

John Robbins, Author of the best-selling books, Diet for a New America and The Food Revolution

"The China Study is a rare treat. Finally, a world-renowned nutritional scholar has explained the truth about diet and health in a way that everyone can easily understand--a startling truth that everyone needs to know. In this superb volume, Dr. Campbell has distilled, with his son Tom, for us the wisdom of his brilliant career. If you feel any confusion about how to find the healthiest path for yourself and your family, you will find precious answers in *The China Study*. Don't miss it!"

Note: Animal Citizen gratefully acknowledges that the above quotes, images & information about the book, The China Study has been obtained from Dr Colin Campbell's website - www.chinastudy.com.

Humane Education



Humane Educator For The World

Mahatma Gandhi is revered in India as Bapu or Father of the Nation and is respected all over the world as a Great Visionary, Statesman, Thinker, Educator and most important, as one of the world's Greatest Leaders and Advocates for Peace and the practice of Ahimsa or non-violence. Though October 2nd is Gandhi Jayanti, that is not the only day when you can give a talk on communicating Gandhi's message to the world. Any day of the month, any time of the year, you can organize an event for the children of a school in your neighbourhood, to remember Gandhi Ji and his great message to the world.

Below are some quotes. Here's an activity that you may like to try out, ideally for children studying in class 7 and 8. Form a group of 26 children. Ask the children to form a circle and let the children form pairs and read out aloud one quote. After all the children have read out the quotes, ask them to explain what is the meaning they have understood from that quote. Let them discuss with

one another before answering. After that, ask each child to tell you about one action that they would like to do in that week to promote ahimsa, peace and non-violence. Tell the children to write it down and then ask each child to come forward and read out to the class. Now, ask the children to take a pledge to do one good action every week. Do not impose your thoughts and decide for them what a good action would imply. Let them feel free to choose and decide for themselves. Follow-up in the next week and find out how many children did what they pledged to do. After that, you can invite the children to visit your shelter and let them spend time observing the animals. Then, you can bring in the idea of caring for animals, providing food, water and shelter as acts of kindness and that promote peace and harmony. You will see that some of the children who visit your shelter that day will soon volunteer to spend time regularly at your shelter.

"The greatness of a nation and its moral progress can be judged by the way in which its animals are treated."

"I hold that the more helpless a creature, the more entitled it is to protection by man from the cruelty of man."

"I feel that spiritual progress does demand at some stage that we should cease to kill our fellow creatures for the satisfaction of our bodily wants."

"To my mind, the life of a lamb is no less precious than that of a human being."

"Be the change you want to see in the world."

"I do not regard flesh-food as necessary for us at any stage and under any clime in which it is possible for human beings ordinarily to live. I hold flesh-food to be unsuited to our species."

"Non-violence is an active force of the highest order."

"The common factor of all religion is non-violence."

"Non-violence is not merely a personal virtue. It is also a social virtue to be cultivated like other virtues."

"I believe that true democracy can only be an outcome of non-violence. The structure of a world federation can be raised only on a foundation of non-violence and violence will have to be totally given up in world affairs."

"I will give you a Talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test: Recall the face of the poorest and the weakest man whom you may have seen and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to control over his own life and destiny? In other words, will it lead to Swaraj for hungry and spiritually starving millions? Then you will find your doubts melting away."

"Ahimsa does not simply mean non-killing. Himsa means causing pain to or killing any life out of anger or for a selfish purpose or with the intention of injuring it. Refraining from so doing is ahimsa. Ahimsa means not to injure any creature by thought, word or deed. True ahimsa should mean a complete freedom from ill- will and anger and hate and an overflowing love for all. Ahimsa is the attribute of the soul and therefore to be practised by everybody in all the different areas of life."

"Truth is my religion and ahimsa is the only way of its realization. Search for truth is search for God. Truth is God. God is because truth is. The freedom from all attachment is the realization of God as truth."

Bird Flu Can Cause a Global Pandemic



According to the World Health Organization (WHO), "about 75% of the new diseases that have affected humans over the past 10 years have been caused by pathogens originating from an animal or from products of animal origin".

These Are Not Isolated Cases

These Are Daily Events in Chicken Factories





Chicken's beak being cut off

The tongue often gets cut off during debeaking

If You Would Like to Report About Facts Like This... Or If you have an interesting Story to share about Animal Welfare Events that you have organized in your City, Town or Village, write to us and tell us about it. We would prefer it if you would send your articles and photographs by email to awbi.editorial@gmail.com / awbi@md3.vsnl.net.in. If you would like to be an Honorary Correspondent / Reporter for Animal Citizen reporting regularly to us about Animal Welfare news & events in your state, please do write to us at the above mentioned email address.

287-300 Litres of Water for A Kg of Potato & 600-1500 Litres of Water for 1 Kg of Wheat

One Lakh Litres of Water Required for Producing 1 kg of Beef



The Animal Welfare Board of India is an umbrella of the SPCAs/AWOs and Animal Welfare Workers. It encourages Animal Welfare activities, advises Central and State Governments and other local bodies on matters relating to Animal Welfare and Prevention of Cruelty to Animals and also helps to formulate Animal Welfare Policies / Legislations.

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