Draught animal welfare

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Abstract

Draught animals (DAs), in developing countries (DC), undergo unimaginable suffering in innumerable ways, such as: excessive strain and stress due to overloading, beatings and whip lashes to haul loads beyond their capacity, callosity and neck injury due to defective harnessing, lack of adequate feed and rest, etc. After their working life, DAs are trekked on foot, or transported in congested vehicles, over hundreds of miles, and finally slaughtered using crude and cruel methods. There is practically no effort to prevent such brutal cruelty. The only way of solving this massive problem is modernisation of the animal power system through inputs of technology and management, which would result in huge economic benefits, justifying the required investment, and concurrently reducing DA suffering. Veterinarians should expand their professional horizon and launch programmes for awareness creation of the economic dimension and establishment of welfare organisations which do not exist now in most DCs. © 1998 Elsevier Science B.V. All rights reserved.

Keywords: Animal welfare organisations (AWOs); Draught animals (DAs); Draught animal power (DAP); Draught animal welfare (DAW); Developing countries (DCs); Veterinarians and veterinary associations (VVA)

1. Introduction

Drought animals (DAs) in developing countries (DCs) are being brutally mistreated and totally neglected. Users of DAs and animal welfare organizations (AWOs) contribute precious little to ameliorate their suffering. From the dawn of history, they have been making significant contributions to human progress. Worldwide, DAs save 20 billion tons of petroleum, valued at US$10 billion. Over two billion people in 30 DCs still use DAs for agricultural operations and small scale transportation. Their dependence on DAs will continue for many more years.
A massive programme of modernisation of the draught animal power (DAP) system would alone reduce animal suffering. Concurrently, an upgraded DAP system will bring in enormous economic benefits to users of DAs and the economy as a whole, which can easily justify the investment required for modernisation. AWOs and workers all over the world are grateful to the World Veterinary Conference for including draught animal welfare (DAW) as one of the themes in the Conference. Veterinarians and veterinary associations (VVAs) are close to animals and indeed eminently qualified to take a lead in launching the DAW movement.

2. Overview of DAP

2.1. DAs and DAP

Cattle and buffaloes, horses and mules, camels and llamas, yaks and donkeys are referred to as DAs. DAP refers to the muscle power exerted by DAs, which varies between half to one hp for cattle, buffaloes, equines and camels. Elephants are used for handling and moving logs in forests. In snow covered regions, dogs are used to haul sledges. DAs are used for a variety of purposes, such as,

(a) drawing agricultural implements for land preparation and other agricultural operations;
(b) hauling animal drawn carts (ADCs);
(c) providing motive power to devices, such as water pumps, cane and seed crushers, electric power generation sets, etc.;
(d) carrying loads on their backs as pack animals.

3. Magnitude of DAP

DAP was included as one of the 14 sources of renewable energy by the UN Conference in Nairobi on New and Renewable Sources of Energy. The global report on DAP prepared by the author showed the potential role of DAP for the economic and social development of DCs, particularly the low income countries, where one billion people live in dire poverty. DAP provides energy for cultivating 52% of the area sown and for hauling 25 million ADCs. 300 million DAs make available 150 million hp in, perhaps, as many points of application. Besides this, dung of DAs is an important source of fuel and manure in DCs. After their productive life, DAs are slaughtered, which yield meat, skin and a variety of useful by-products.

Investment in the DAP system may be of the order of US$150 billion. Its replacement by fossil fuel power and mechanical equipment—tractors and trucks—may require an investment on the order of US$300 billion, which is clearly beyond the capacity of DCs and 300 million poor farmers. The DAP system saves 20 billion tons of petroleum,
which is valued at US$10 billion, and is the main instrument of production for millions of poor marginal farmers. Some DCs are extremely short of fossil fuel energy, such as India and Bangladesh, Pakistan, Thailand and Indonesia, where DAP is a readily available source of appropriate energy. Dependence of selected regions of the world for energy is given in Table 1. Table 2 shows the estimated share of energy from fossil fuel, animal power and human power for DCs, developed countries and the world.

In India, DAP is a part of the livestock sector. Seventy four million cattle, eight million buffaloes as well as two million horses and camel make available 40 million hp. DAs plough 100 million hectares and haul 15 million ADCs. Asset value of the DAP system is estimated at five billion dollars, and its replacement by mechanised systems may need an investment of 15 billion dollars, which is clearly beyond the capacity of small farmers and the Indian economy. The DAP system is not only appropriate but also inevitable from the economic and technical points of view in India.

Table 1
Animal and tractor power used in agriculture in selected regions and countries

<table>
<thead>
<tr>
<th>Region or country</th>
<th>Type of power* (10 Mcal)</th>
<th>Total (10 Mcal)</th>
<th>Animal power (as % of total)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Animal</td>
<td>Mechanical</td>
<td>Animal Power</td>
</tr>
<tr>
<td>Africa</td>
<td>2.095 449</td>
<td>2.544 82</td>
<td></td>
</tr>
<tr>
<td>Near East</td>
<td>3.320 436</td>
<td>3.756 88</td>
<td></td>
</tr>
<tr>
<td>Latin America</td>
<td>6.731 2.289</td>
<td>9.020 75</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>671 568</td>
<td>1.339 54</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>2.604 326</td>
<td>2.930 89</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>902 2.883</td>
<td>3.785 24</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>293 135</td>
<td>428 69</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>15,481 119</td>
<td>15,600 99</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>800 1.557</td>
<td>2,357 34</td>
<td></td>
</tr>
<tr>
<td>Morocco</td>
<td>231 102</td>
<td>333 69</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>536 520</td>
<td>1,056 51</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>1,480 192</td>
<td>1,672 88</td>
<td></td>
</tr>
</tbody>
</table>

* Mechanical power is expressed as animal power divided by five; animal power is converted to megacalorie (Mcal) equivalents used directly in agriculture.
Excluding the People’s Republic of China.
Figures for 1981.

Table 2
Estimated share of energy from fossil fuel, animal power and human power for DCs, advanced countries and the world

<table>
<thead>
<tr>
<th>Power sources</th>
<th>Total</th>
<th>Manual labour</th>
<th>DAP</th>
<th>Tractors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area</td>
<td>%</td>
<td>Area</td>
<td>%</td>
</tr>
<tr>
<td>Developing countries</td>
<td>479</td>
<td>100</td>
<td>125</td>
<td>26</td>
</tr>
<tr>
<td>Developed countries</td>
<td>644</td>
<td>100</td>
<td>44</td>
<td>7</td>
</tr>
<tr>
<td>World</td>
<td>1123</td>
<td>100</td>
<td>169</td>
<td>15</td>
</tr>
</tbody>
</table>

4. DAW

DAWs in most parts of the DCs are fed with crop residues, poor quality pastures, straw, etc. During off season, DAs are kept on a low-maintenance diet. They become very weak when the working season starts, and are unable to carry a normal load. DAs are invariably overworked and overstressed. In order to goad DAs to exert and work beyond their normal capacity, they are ill-treated in crude ways, such as beatings, twisting tails, prodding with sharp devices, and tickling their underside causing acute pain. Often, sick and injured animals are made to work, as owners would otherwise starve. Farmers and carters resort to such cruel methods in order to get more work done. As they themselves are eking out a subsistence existence, users are not sensitive to animal suffering and invariably overload and overstress DAs. Many become unproductive and are sent for slaughter.

Most of the equipment attached to DAs, such as ploughs and other agricultural implements, carts, yokes and harnessing devices, etc., are of crude design, which hurt DAs and are inefficient. DAs have to exert far more effort than required. In addition, the fit between the equipment and the DA is often so bad that DAs work with acute discomfort and pain. Traditional yokes injure the animal’s neck, causing callosity (Fig. 1). Pull beams rub on the skin and cause sores.

The agony of DAs continues—not only whilst at work but even when they are no longer fit for work. Abominable conditions prevail in most slaughter houses in Asia and Africa, where the slaughter system is in deplorable condition, with hardly any improvements made for several decades. Crude methods of transport and handling, lack of basic facilities in slaughter houses, primitive methods of slaughter, etc., cause unimaginable
suffering to animals. DAW programmes have to be on two fronts: prevention of cruelty and pain to DAs on the one hand and fostering their care and well-being on the other.

The low level of productivity of DAP is one of the main reasons for poverty and animal suffering. Unfortunately, in spite of these obvious factors, DAP continues to be neglected by leaders and professionals involved in economic and social development. Funds allotted by national and provincial governments in DCs is so low that even veterinary services are far below requirements. In order to play a lead role, veterinarians have to expand their professional sphere to include prevention of cruelty and fostering DAW in many ways. Veterinary colleges may introduce DAW as an important element in the curriculum so that veterinarians could develop an animal welfare dimension in their professional expertise.

Though the need is obvious, DAW is not an easy task, with innumerable problems of colossal magnitude. Taking care of and preventing cruelty to millions of DAs is an impossible task for the few AWOs. Most of the DCs have no animal welfare tradition or AWOs. At least half the users are extremely poor, who overwork DAs in order to earn a bit more. Field-based veterinary services are non-existent.

In view of the above, the solution is to provide adequate DAW by modernising the DAP system. AWOs and veterinarians must persuade governments to modernise the DAP system by emphasising the important economic dimension of DAs. DAW requires massive investments for technology upgradation, provision of proper feed and nutrition, veterinary and health care, etc. The justification for DAW will be evident from the magnificent contribution of DAP for agricultural production and small scale transportation as well as for production of bio-energy using dung. In fact, DAW work will directly help human progress and welfare by way of (a) increased agricultural production, including yields from skin and meat and employment (and earnings) for the poor, (b) reduced damage to roads and plant life and reduced pain and injury to DAs, (c) less fatigue and better comfort for DAs in working, etc. Existing low technology results in tremendous waste to the economy, enormous losses to users and unimaginable lifelong suffering to DAs, during work and during slaughter.

5. DAW programme in the world

DAW programmes should be initially launched in DCs where DAP will remain a major source of energy for the foreseeable future. Asia contains the most DAs. China already uses improved designs of agricultural implements, carts and harnessing devices, which reduce the draught required. Therefore, DAs in China are under less strain, and receive better care. The main problem in Asia exists in the Indian sub-continent where poor farmers, submerged in poverty, are insensitive to animal suffering and cannot afford better equipment. In Africa and South America, there is practically no animal welfare culture. Generally, the lot of DAs in Africa is worse than in Asia. DAP may slowly decline in South America. A common harnessing method in South America is tying the yoke to the horns, which hurts animals.

In most DCs, DAs are prone to Foot and Mouth, Rinderpest and such other diseases. In Africa, Trypanomiasis is a special problem. Eradication of such diseases is also part of DAW, where VVAs now play a key role.
6. Draught animal welfare in India

India is a good case study for welfare of DAs. In spite of their dependence on DAP and a culture of kindness to animals, animal suffering still is acutely severe. The economic aspect is ignored on the assumption ‘DAP is a backward technology, which will die soon’.

In spite of the magnificent contribution of DAs to agricultural production and small scale transportation, DAW is terribly weak in India. India has enacted the ‘Prevention of Cruelty to Animals Act’, which provides punishment for those who mistreat DAs by way of overloading, whipping, etc. But punishment is nominal and the laws are too cumbersome for implementation.

Though the asset and output value of the livestock sector in India is on the order of US$25 billion, the budget of the Animal Welfare Board of India—the apex institution for animal welfare—is only half a million dollars. Active AWOs number only about 500 and inspectors to prevent cruelty number only about 500. Obviously, they cannot take care of the prevention of cruelty to millions of animals, scattered all over the country.

7. Indian culture and DAs

Indians, particularly Hindus, revere certain animal species, and even worship some of them. In spite of such a glorious heritage and a confluence of cultures, Indians are, in practice, cruel to animals in the way animals are utilised. Cattle and buffaloes, goats and poultry are slaughtered every year for meat in gruesome ways.

The approach of most AWOs is now based on secular concepts of ethics and morals, kindness and compassion, sentiment of humanism, etc. DAs are sentient beings, which experience pain and pleasure like human beings, and require humane treatment. Cruelties inflicted on DAs must be prevented to the extent possible. A spiritual approach is also needed by which man can be persuaded to be kind towards animals.

8. Upgradation of DAP

The DAP system should be upgraded by four streams of action, which will increase productivity and simultaneously reduce animal suffering.

(a) Provision of adequate feed and nutrition as well as health and veterinary care so that animals are physically fit for optimum workload.

(b) Popularisation of improved designs of agricultural implements, animal drawn carts and devices, harnessing methods to suit the physiology of DAs, etc.

(c) Improved management and infrastructural facilities for R&D, extension and popularisation, training, credit and subsidy, incentives, mass campaigns through media, stricter laws and their vigilant implementation, etc.

(d) Breeding policies for the improvement of draught capacity. Veterinarians have to play a very important direct role here.
If DAs are made productive on off-farm work, during the off-season, they will receive better care. If fed with a balanced and enriched diet, DAs will get greater strength capability for work and will also be less susceptible to diseases. During drought and famine, animals are usually the first casualty, and therefore, fodder banks should be established in drought prone areas.

The veterinary profession is primarily concerned with providing health care services. DAP and slaughter sectors are practically untouched by them, which requires attention from both ‘economic and humane consideration for animals’. Veterinary service in most DCs is based on the concept of stationary hospitals. Since DAs work is scattered across 150 million sites, only mobile services could reach them, which do not exist now.

9. Popularisation of improved designs of animal drawn implements, animal drawn carts, animal drawn devices and harnessing methods

CARTMAN and other institutions in India have brought out improved designs of ADCs with steel wheels and axles, pneumatic tyres, smooth bearings, light platform, etc. (Fig. 2). But due to the lack of an extension effort, hardly one million ADCs, out of 15 million in India, are of the improved variety, the rest are of the traditional variety (Fig. 3).

China is the only one among the DCs where improved agricultural implements and carts are used. China has also developed better harnesses—the double piece yoke (Fig. 4) and the even bar system (Fig. 5) and harnessing devices for horses (Fig. 6), cattle (Fig. 7), bullock (Fig. 8)—which increase productivity, simultaneously reducing strain and injury to DAs. All DCs should emulate China in DAP.

Improved agricultural implements reduce the draught effort required and improve land preparation. During idle time, DAs can be put to work on these improved implements and carts on a professional basis. The even-bar system of harnessing for ploughing and agricultural operations enables hitching of DAs of different species and sizes, young and females etc. The present method of a rigid yoke on the neck, or tied to

Fig. 2. Improved cart.
Fig. 3. Traditional cart.

Fig. 4. Double yoke harness for humpless bullocks.

Fig. 5. The even-bar system for drawing implements.
Fig. 6. Horse collar harness.

Fig. 7. Three pad collar for cattle.

Fig. 8. Bullock collar harness for ploughing.
the horns, hurts the animal and is less efficient. Non-lactating females and young animals can also be put to work using the even-bar system.

Another method of harnessing, widely used in China, is a double piece yoke for carting, enabling use of young animals and non-lactating cows and buffaloes. These devices increase utilisation of farmer’s milking and young animals (Fig. 9). Buffaloes do not have a hump and cross-bred are losing their humps. The double-piece yoke enables such animals to be put to work (Fig. 10). Use of even bar and double-piece yoke systems in a large way, is worth emulation by other DCs.

Design and introduction of improved equipments, ploughs, yokes, harnesses, etc., require enormous investment for R&D and popularisation. National governments and development agencies have to come forward in a big way to modernise agricultural implements, carts and harnesses.

Fig. 9. Double animal harness to the cart.

Fig. 10. Buffalo harness for ploughing.
10. Modernisation of the meat sector

Modernisation of the meat sector—by providing basic facilities such as water, light, ventilation and introduction of stunning before slaughtering—would reduce animal suffering. Stunning is a standard practice in all advanced counties and is mandatory by law in a few countries. It should be possible to get the practice accepted in India as well, however, a massive campaign of education and training will be necessary.

A recent study by CARTMAN on the Feasibility and Economics of Rural Abattoirs in India shows that shifting of city based abattoirs to rural areas will result in enormous economic benefits and eliminate much animal suffering.

11. Management and infrastructure, R&D, extension and popularisation, training, credit, etc.

Research and campaigns in India during the last two decades have not been successful, except that a general awareness has been created on the need to upgrade the DAP from the point of view of agricultural production, small scale transport, rural development, alleviation of rural poverty, creation of additional rural employment, etc.

The government should establish a DAP Development Board, as has been done for many other sectors. What is true of India is equally applicable to other DCs, such as Pakistan, Bangladesh, Sri Lanka, Nepal and Burma. Similar is the case in South East and West Asian and African countries.

A draught animal welfare effort must necessarily come from the national governments of these countries, which should introduce improved technology and management for upgrading the DAP system. VVAs can campaign to achieve this objective.

12. Conclusion

The World Veterinary Association can help by recommending inclusion of the DAP system in the various programmes of the UN, being executed by the Food and Agricultural Organisation (FAO), with funding support from the UN. Similarly, the development agencies of advanced countries providing development assistance to DCs could provide funding support towards modernisation of the DAP system, which would concurrently result in reducing animal suffering. This World Conference should be congratulated for introducing this subject at an international meeting, and should follow up with action programmes.

Developmental agencies of the UN system, such as FAO and ESCAP, ought to take some interest in DAW. As there is an economic development component, the UN Development Programme itself ought to give funding support.

Heads of animal husbandry departments and slaughter houses are manned by veterinarians, where they have some measure of authority and prestige for policy making and implementation of programmes. VVAs are deeply involved in research programmes on breeding, feed and nutrition, health care, veterinary services, etc. This World
Conference should form a network of VOs for DAW. Field studies should be conducted to prepare a Report on DAW for the next World Veterinary Conference.

13. Recommended further reading

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