Rabies is one of the oldest known diseases, and causes an estimated 55,000 human deaths each year, mostly in children who have been bitten by dogs. Dogs are the main source of rabies in developing countries. For this reason, controlling rabies in dog populations, particularly among stray dogs, is the key to preventing human deaths worldwide.

Immunisation, using vaccines recommended in the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*, is the method of choice for successfully controlling rabies. However, effective control of stray dog populations is also essential. Effective rabies control programmes require, as a minimum, consultation and collaboration between interested parties and a commitment from government, including animal health and public health agencies, as well as other relevant organisations, to support the programmes. This support must include providing the staff and financial resources needed to support activities over several years. The support and engagement of stakeholders and, in many cases, of non-governmental organisations (NGOs) is also key to sustainable rabies control programmes.

 Authorities sometimes attempt to depopulate stray dogs as a stand-alone measure, in the belief that reducing the numbers of stray dogs will help to prevent rabies. However, this is not considered effective. Improvements may be achieved in the short term but the removed animals can quickly be replaced, especially if there is no change in the behaviour of dog owners and others. If measures to reduce the stray dog population are employed with the aim of controlling (or eradicating) rabies, they must be combined with other control measures, notably public awareness campaigns and education on responsible dog ownership, to be successful in the long term.
Recognising the need to control stray dog populations, with the aim of preventing and controlling rabies, particularly in developing countries, and with the objective of avoiding unnecessary animal pain and suffering, the OIE has developed a standard on stray dog population control, found in Chapter 7.7 of the Terrestrial Animal Health Code, which may be viewed online at: www.oie.int/index.php?id=169&L=0&htmfile=chapitre_1.7.7.htm.

Some important recommendations from Chapter 7.7. on ‘Responsibilities and competencies’ and ‘Control measures’ are summarised below.

### Responsibilities and competencies (from Terrestrial Code Article 7.7.4.)

In order to be effective, the monitoring and management of stray dog populations should be undertaken in a collaborative manner, involving authorities for the protection of public health, animal health and the environment, local authorities and, as appropriate, non-governmental organisations (NGOs). The following responsibilities and competencies should be clearly defined:

- **Veterinary Authority**
  The control of a zoonotic disease such as rabies requires technical advice to be provided by the Veterinary Authority, which is responsible for the implementation of animal health and animal welfare legislation. The Veterinary Authority is normally responsible for animal health and some aspects of public health, but other governmental authorities have complementary competencies and responsibilities.

- **Other government authorities**
  Public Health Authorities normally take the lead in the prevention of rabies in the human population. Other government agencies may have, or share, responsibility for public safety and security (e.g. management of risks caused by free-roaming dogs in the community), particularly at the state, provincial or local level.

- **Private sector veterinarians**
  Private sector veterinarians play a key role in such tasks as disease surveillance, preventive veterinary medicine and advising on responsible ownership. Together with the police and/or local authorities, private veterinarians can help to manage and prevent the neglect and abandonment of pet dogs, which can lead to an increase in the stray dog population.

- **Non-governmental organisations**
  Non-governmental organisations are important partners in the control of stray dog populations, as they can make a major contribution to raising public awareness and help in obtaining resources to support programmes for responsible dog ownership, including sterilisation and vaccination of pet dogs.

- **Dog owners**
  As part of responsible pet ownership, dog owners should ensure that each pet dog is clearly identified, preferably with a permanent means of identification, and registered on a centralised database, where required by legislation. Responsible ownership is one of the most important tools to prevent dogs roaming freely and causing hazards to their owners and the community at large.
Control measures
(from Terrestrial Code Article 7.7.6.)

To achieve effective and sustainable control of stray dog populations, a suite of complementary measures must be used. It is important to realise that euthanasia, used alone, will not be effective. Relevant control measures include:

**a) Responsible dog ownership**
The promotion of responsible dog ownership through legislation, education and public awareness campaigns is an essential part of an effective dog population control programme. Encouraging dog owners to be more responsible can help to reduce the number of dogs allowed to roam, thereby reducing the associated risks to the community.

**b) Registration and identification of owned dogs**
Identification and registration of owned dogs, including the possibility of establishing a centralised database, is a useful tool to aid compliance with legal requirements. In particular, it enables lost dogs to be reunited with their owners.

**c) Control of dog reproduction**
Controlling reproduction in dogs is obviously important to prevent an increase in the stray dog population. This is essentially the responsibility of owners. However, education and, if possible, incentives should be provided by public authorities to encourage owners to sterilise their pets.

**d) Regulation of commercial dog dealers**
Dog breeders and dealers can also play an important role in responsible pet ownership. Associations of breeders and/or dealers should encourage a commitment from their members to raising and selling physically and psychologically healthy dogs. Unhealthy dogs and those that are difficult to manage are more likely to be abandoned, thereby contributing to an increase in the stray dog population. Even if not abandoned, dogs with behavioural problems may be more predisposed to wandering and to attacks on humans.

**e) Reduction in dog-bite incidence**
Public awareness and education campaigns aimed at the general public, dog owners and children are an effective means for reducing the rate of dog-associated problems, including bites. Dog owners should be educated in the principles of responsible dog ownership (Article 7.7.6., point 1). Young children are the group at highest risk for dog bites. Public education programmes, which teach appropriate behaviour around dogs and are based on the advice of dog-behaviour experts, have been shown to be effective in reducing dog bites.

**f) Euthanasia**
When euthanasia is required, it should be carried out according to the general principles of the Terrestrial Code. The choice of euthanasia methods should ensure operator and public safety and all efforts should be made to avoid unnecessary animal pain and suffering. To meet these requirements, operators should be adequately trained and equipped, and correct techniques applied. Care should be taken to ensure that carcasses are disposed of appropriately and only when death has been confirmed.

Conclusions

The effective control of stray dog populations is a key element in a successful rabies control or eradication programme, along with the appropriate use of vaccines proven to be effective against rabies. Euthanasia alone is not an effective method of controlling stray dog populations. If euthanasia is used as part of a control programme, it must be integrated with other control methods to achieve effective and sustainable results. The choice of euthanasia methods should ensure operator and public safety and all efforts should be made to avoid unnecessary animal pain and suffering. Tools to raise public awareness and education to promote responsible pet ownership are important complementary measures in rabies control programmes. Veterinary Services should play a lead role, in collaboration with other responsible authorities and, as appropriate, NGOs. Applying the standards in the OIE Terrestrial Code is the best way to achieve control or eradication of rabies, while adequately protecting human health, and animal health and welfare.