

# PROVIDING VACCINES FOR MARGINAL FARMERS



Millions of the world’s poorest households and most vulnerable people rely on income generated from poultry to pay for their day to day needs. In particular, women and children depend on poultry to pay for their families’ education or as a quick source of cash in times of trouble. **Newcastle Disease (ND) is a deadly disease to poultry that puts at risk 70% of the estimated 1.38 billion chickens in Africa.**

ND is preventable - effective vaccines exist – but too often small farmers do not benefit. They do not know about them; the batches are too large to be useful with their tiny flocks, and they are not sold in rural areas as they must be kept chilled. DFID is tackling this issue by establishing and funding GALVmed, a research programme that looks to help farmers improve the health of their animals in low income countries. **GALVmed is looking at the problem from a number of angles:** such as improving vaccines themselves; educating farmers and therefore ensuring that they can make best use of the vaccines. This includes making sure that everyone in the supply chain is benefitting, from producers to shop-keepers, so that they will continue once this project has ended.

Pilots which have already been undertaken show promising signs for farmers and for the economy as a whole. **In India alone, it is estimated that effective and efficient control of ND could easily save US\$182m per annum.**

## Introduction

**A few chickens scratching around a yard or by a roadside is a familiar sight to anyone who has travelled in much of the developing world. Though modest, they represent a vital nutritional supplement as well as a financial asset to some of the poorest farmers; in particular women and landless labourers. Pro-poor growth and empowerment are at the heart of GALVmed’s mission.**

ND, endemic across Sub-Saharan Africa and South Asia is fatal to poultry and can wipe out entire flocks. Vaccines are available; indeed 100% of the large-scale commercial flocks in the developing world are vaccinated. Live vaccines can be easily disseminated via water, but do require refrigeration. Rates of vaccination for small-holder, rural poultry, by contrast, are close to nil. Uptake in Africa is also low; out of 1.2m poultry in the Mackakos region in Kenya, less than 1% are vaccinated.

GALVmed research aimed to discover why this was and how best to preserve and protect a vital asset of some of the world’s poorest and most marginalised citizens.

## Research Findings

Research concerned both developing the vaccines and how to deliver them. Effective vaccines exist but are impracticable for poorer farmers. They come in large dose vials, for 100 birds (most backyard owners have 2-8); require refrigeration and must be administered to individual birds; with village poultry this is a problem.

Whilst there were differences between pilot areas, a lack of awareness of animal health amongst backyard owners and of their needs by manufacturers, were common hurdles.

The team took a whole-system approach to the problem, mapping each stage of the supply chain and identifying potential problems- and solutions. This ranged from improving existing vaccines and developing new ones; legal registration of these, and advising shop-keepers on how to price products to create a sustainable business model.

## Development of New Products

- Two new platform technologies for vaccine delivery have been developed including a fast dissolving tablet and a pellet vaccine for oral vaccination.

- A process has been developed to thermostabilise current ND vaccines.
- Thermostable strains have been used for the commercial production of ND vaccines.

## A Total Approach

Developing the products was not enough, neither was a straightforward campaign of vaccination. In the pilot projects, the team wanted to ensure a sustainable solution, that is, one that would continue long after their work was done.

To this end they looked at every stage of the vaccines' life, from inception, to administering of the vaccine. One vital feature was that the distribution, retailing and use of the vaccine by farmers were profitable, thus financially sustainable. This involved persuading shopkeepers to stock it and giving business advice to make it profitable. This created spill-over effects and growth across different sectors.

Community Animal Health Workers (CAHW) were trained to administer the vaccine, and linked to professional vets for support in the case of complications. They, in turn, educated

farmers on the benefits of the vaccine and good husbandry. By recruiting CAHW from local areas, and working with community self-help groups, lasting bonds were forged.

"I am Tulasi Dehuri and I am a member of MahaTarini Self Help Group. GALVmed has enabled us to care for our animals... We sell chickens and goats and invest in our children's education... We no longer have financial worries. It's our hope that we can achieve even more"



### Impacts at a glance

Up to 140% increase in farmer incomes  
 Up to \$134 for every \$ spent over 5 years.  
 Mortality rate from diseases: 90% to 20%  
 Egg clutches per year: 2-3 to 4-6.

## PROGRAMME RESULTS SUMMARY

GALVmed ran pilots in 8 locations across Africa and South Asia, vaccinating some 1,500,000 birds. These 3 examples demonstrate the highest and lowest performing countries according to 3 criteria.

### NEPAL- 2,300 Farmers



In Nepal, as well as vaccinations, basic poultry management advice was also given to farmers, partially explaining the very large increase in income.

Net Increase in Farmer's poultry Income: **140%**  
 Benefit-Costs Rate over 5 years: **\$74**  
 Net Present Value over 5 years: **\$3,620,000**

### BURKINA FASO- 8,861 Farmers



Net Increase in Farmer's poultry Income: **23%**  
 Benefit-Costs Rate over 5 years: **\$11**  
 Net Present Value over 5 years: **\$1,188,000**

### TANZANIA- 13,138 Farmers



Net Increase in Farmer's poultry Income: **59%**  
 Benefit-Costs Rate over 5 years: **\$134**  
 Net Present Value over 5 years: **\$14,822,000**

### METHODOLOGY

Net Present Value is an indicator of the current value of the future savings of a project, i.e. the value taking inflation into account. These results assume a discount factor of 15%. The increase in farmer income was calculated according to interviews with farmers about how their incomes had changed, so will be liable to some margin of error.

### Key Contacts

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## References

ND Pilot Project Nepal Completion Report June 2012

Statistics from GALVmed presentation September 2013. Images: GALVmed Team, consent obtained from participant.