

**Opportunity costs and cost per tonne of
carbon sequestered of reducing the
clearing of primary forest for industrial
logging and oil palm production**

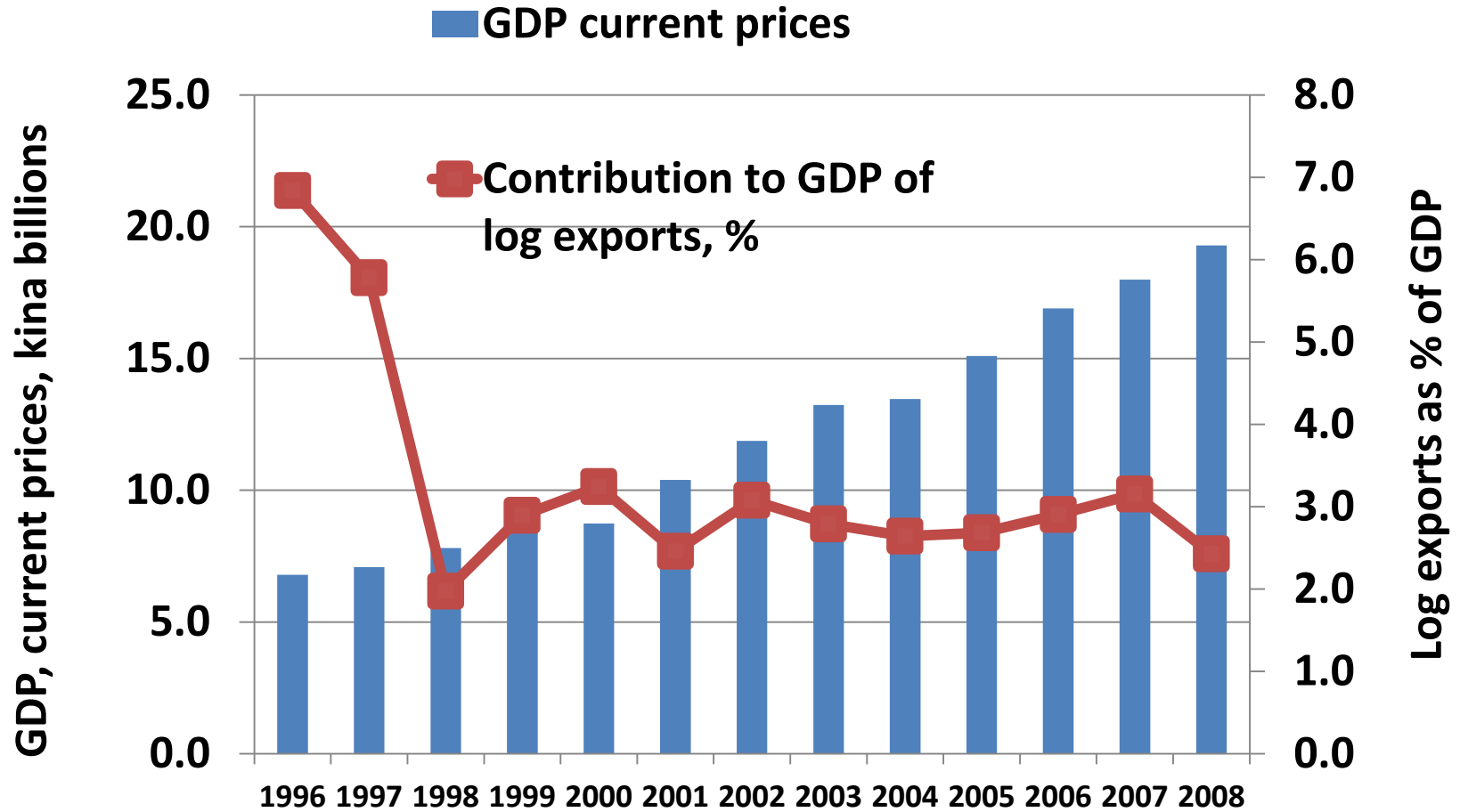
Presentation by Dr Colin Hunt

**for interdepartmental administrators at the
Department of Environment and Conservation
of Papua New Guinea, Port Moresby,**

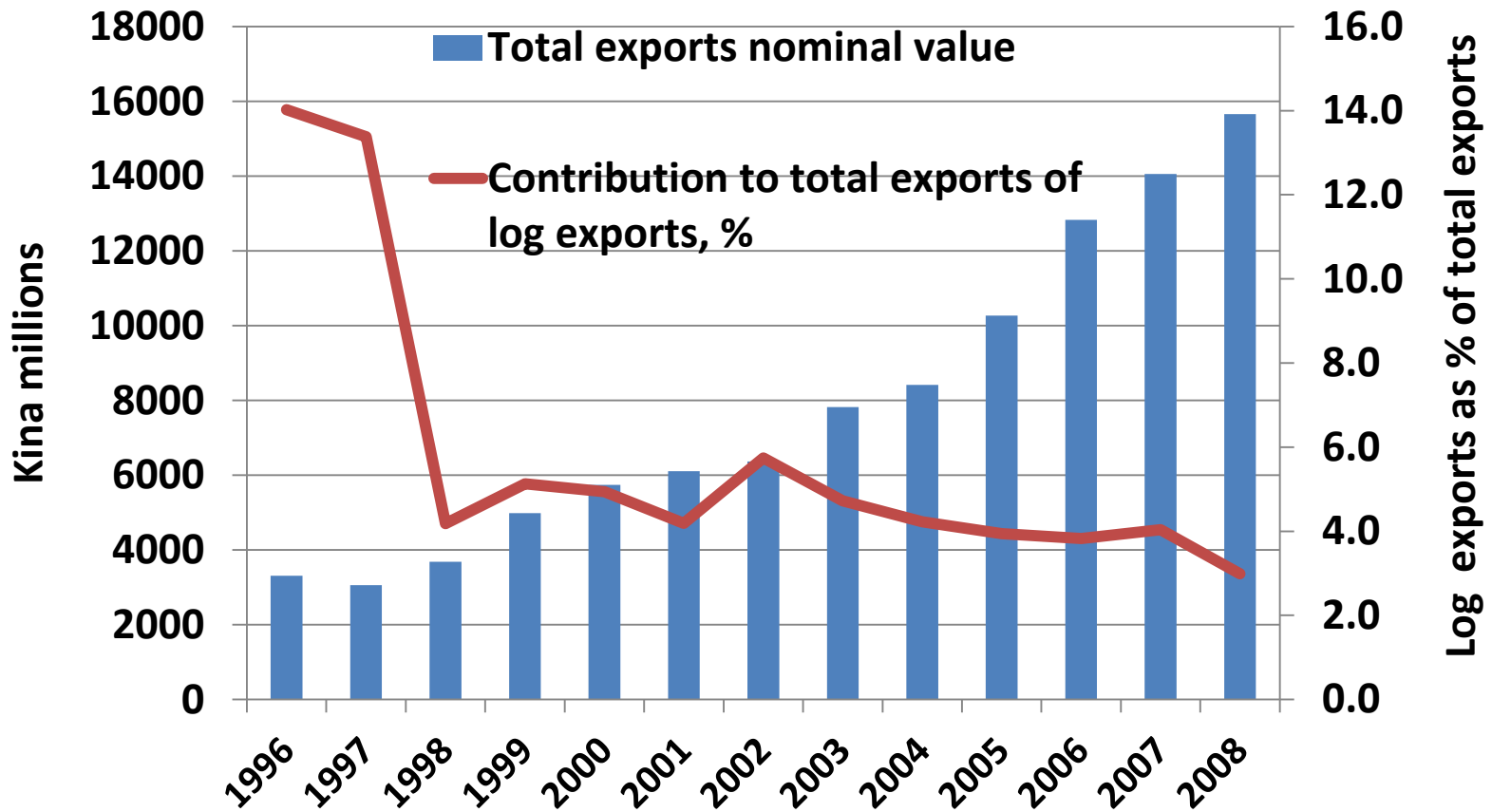
5 November 2009

Industrial Logging

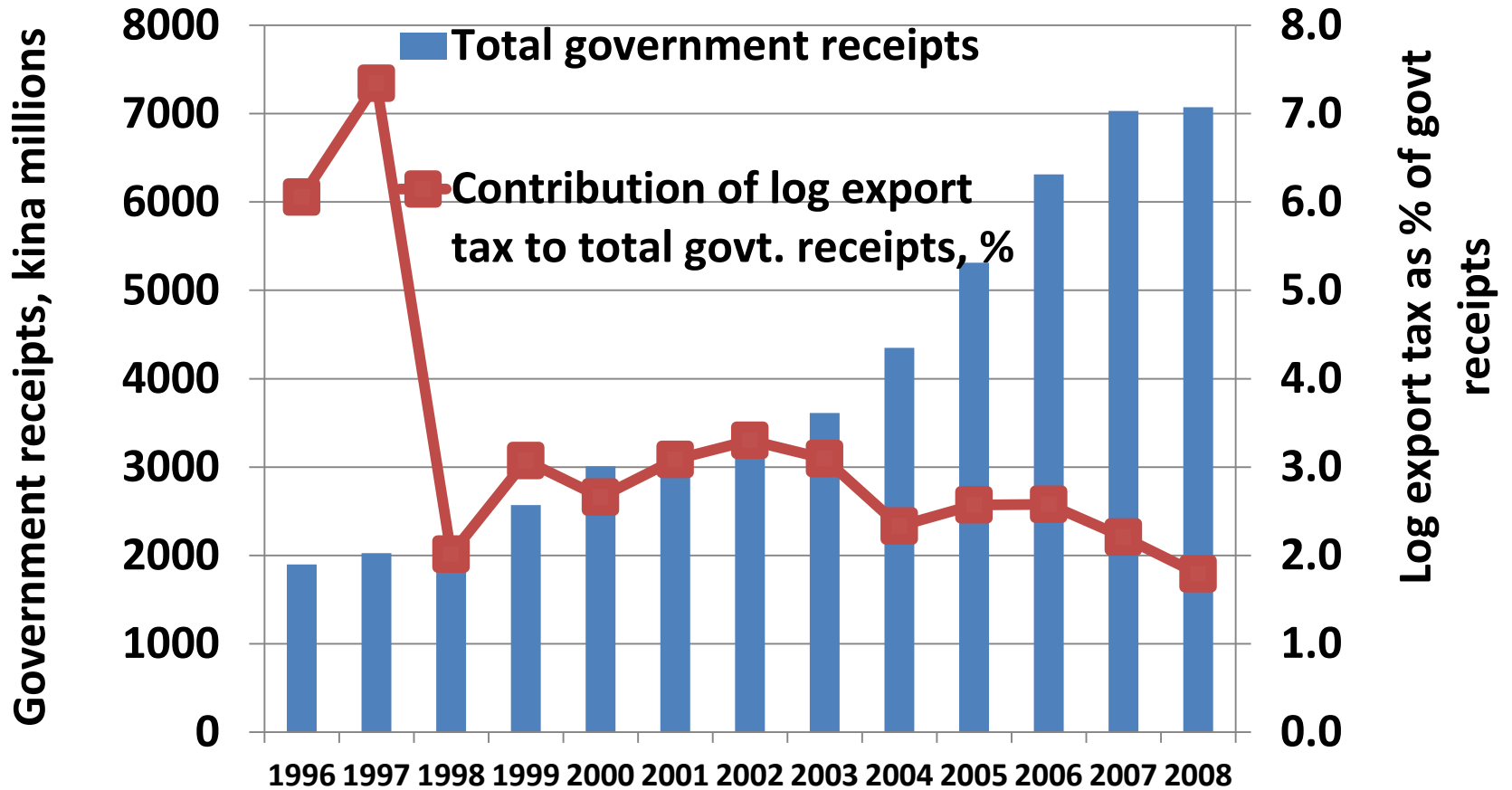
Contribution to GDP



Contribution to foreign exchange earnings



Contribution to government receipts



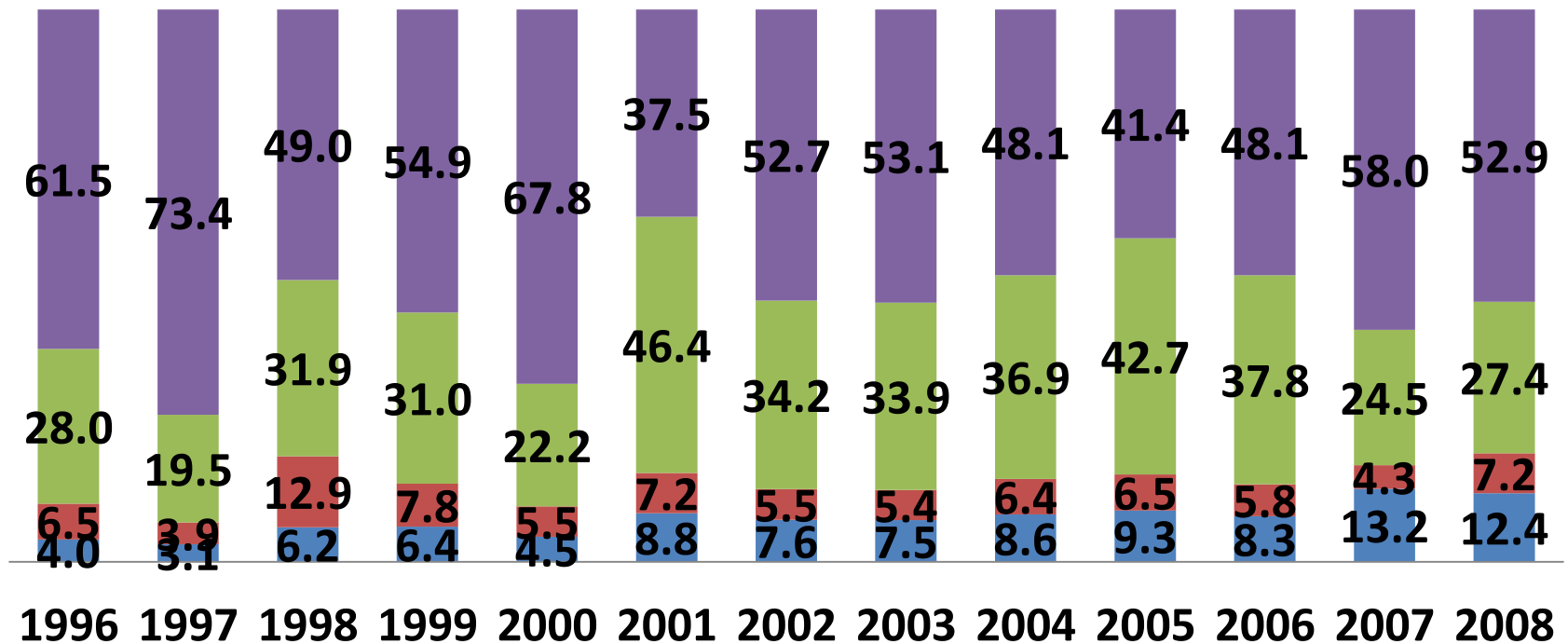
Shares of log FOB

■ Logging company

■ Government

■ Landowner royalty

■ Landowner development benefit



Regional economic benefits (1)

“It has been estimated (FAO 2005) that 8,000 landowners at any one time receive monetary benefits through the provision of wage labour to logging companies. Survey data suggested a wage rate of K60 per fortnight (Siuta 1998, cited by Kocher Schmidt et al. 1999:Table 4) and an annual wage benefit of K12.5 million. If employment levels have been maintained and wages have kept pace with inflation then the 2008 wage benefit would have been about **K30 million**. Assuming a multiplier of 0.7 on local expenditure of K15m suggests a secondary benefit from wages of K10 million.”

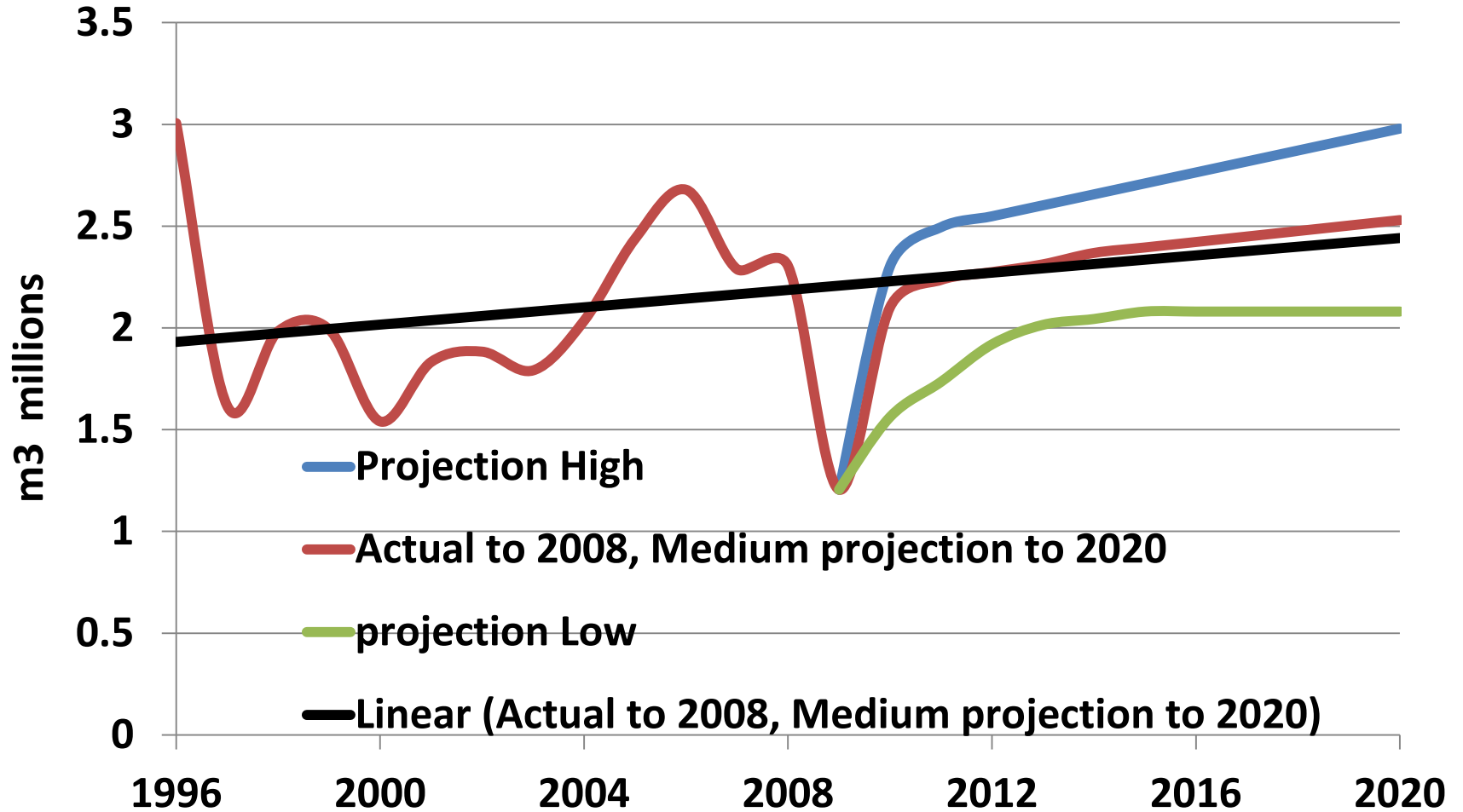
Regional economic benefits (2)

In many locations where logging takes place, landowners are in subsistence or semi-subsistence; and major constraints to development are transport difficulties, lack of government support, the absence of physical infrastructure and remoteness. Cash cropping and small-scale industry is precluded. **By generating landowner royalties and development levies the industry makes an important potential contribution to regional incomes and assists in the development of regional infrastructure with socio-economic value. But the same development constraints apply to the ability of landowners to invest the proceeds of logging in productive enterprises.**

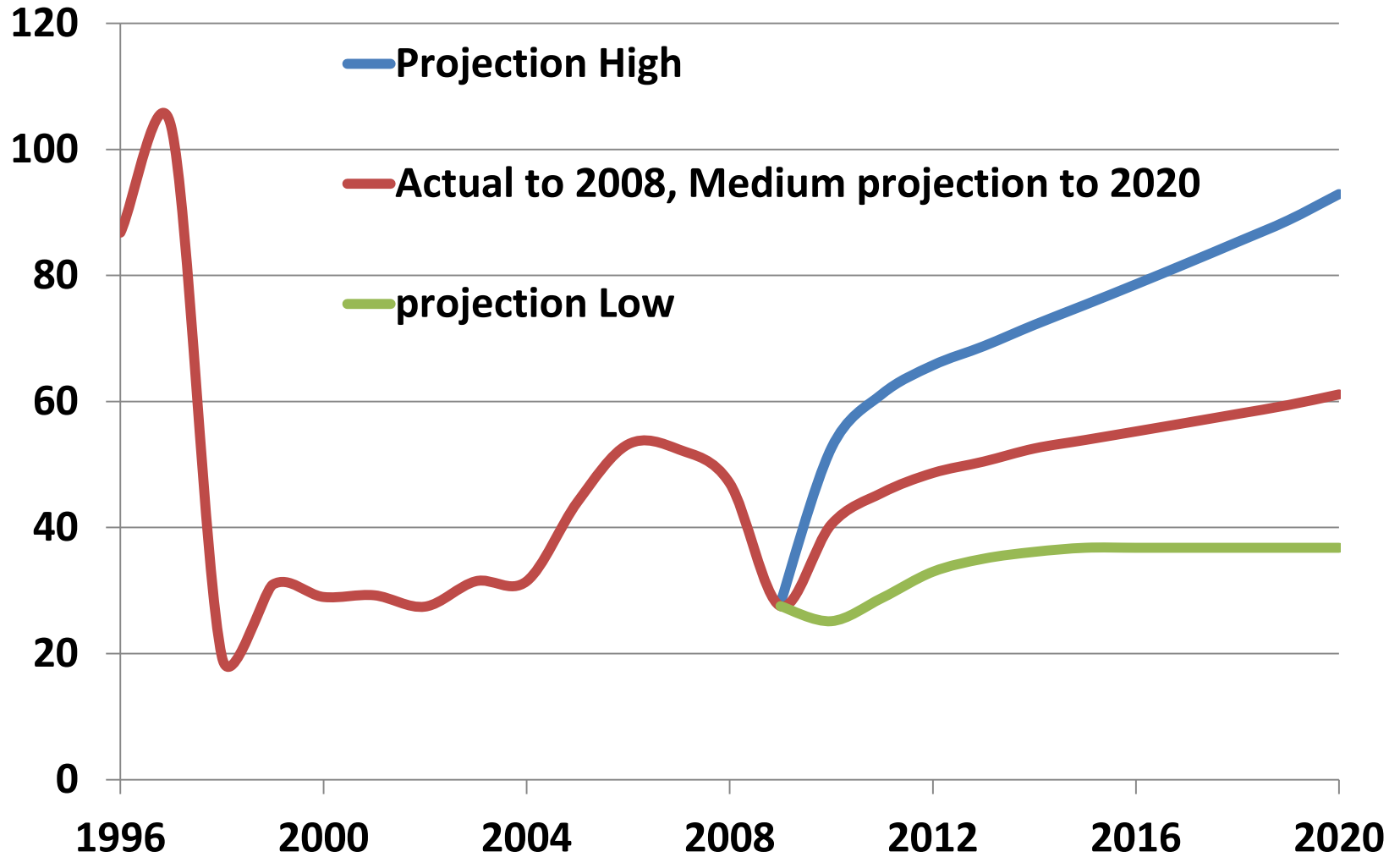
Regional economic benefits (3)

After local forest resources have been exploited the logging companies move on. Royalty payments to local landowners then cease and local infrastructure left behind invariably deteriorates due to lack of maintenance. **Much of the benefit to landowners at local level can therefore be characterised as ephemeral.**

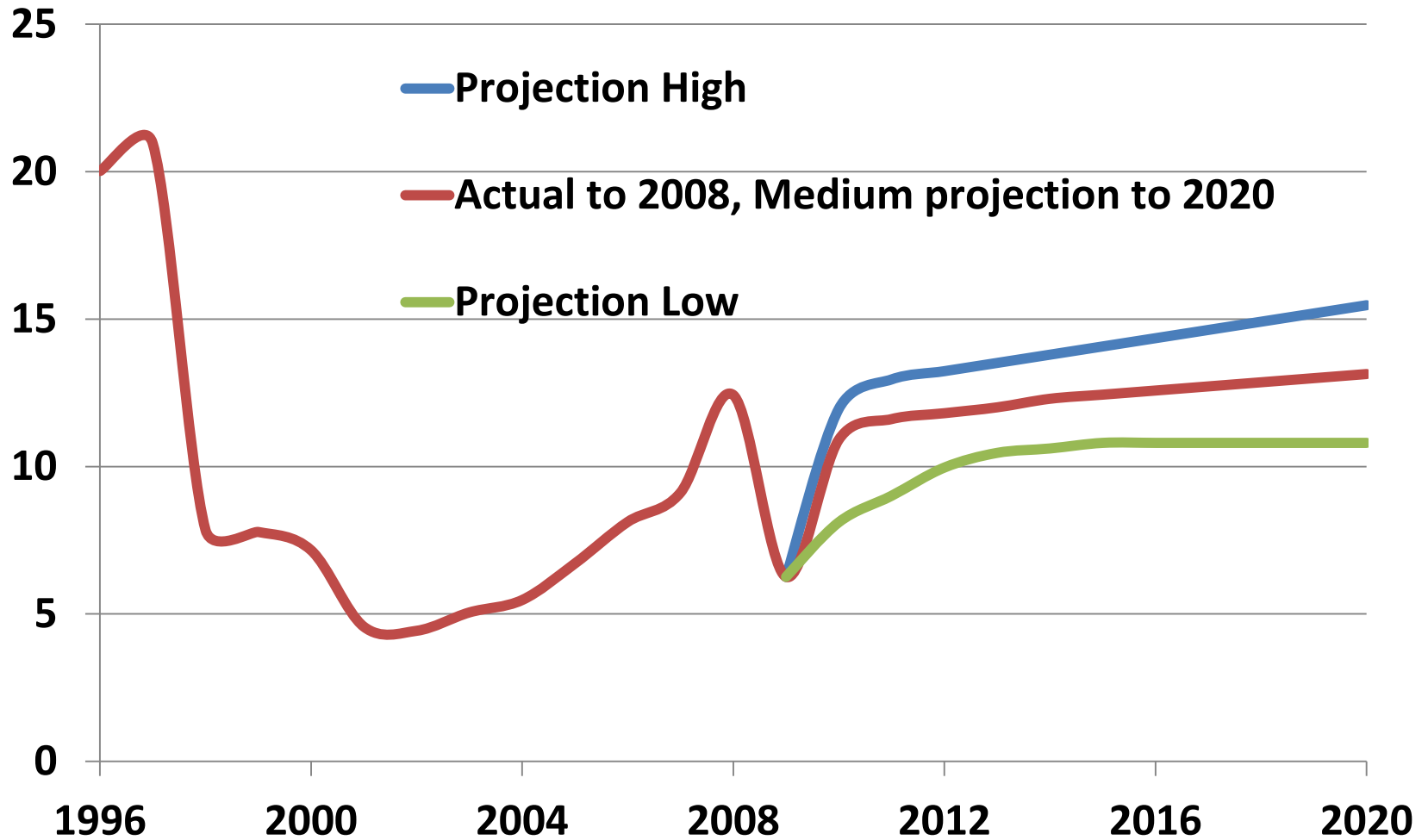
Volume of log exports



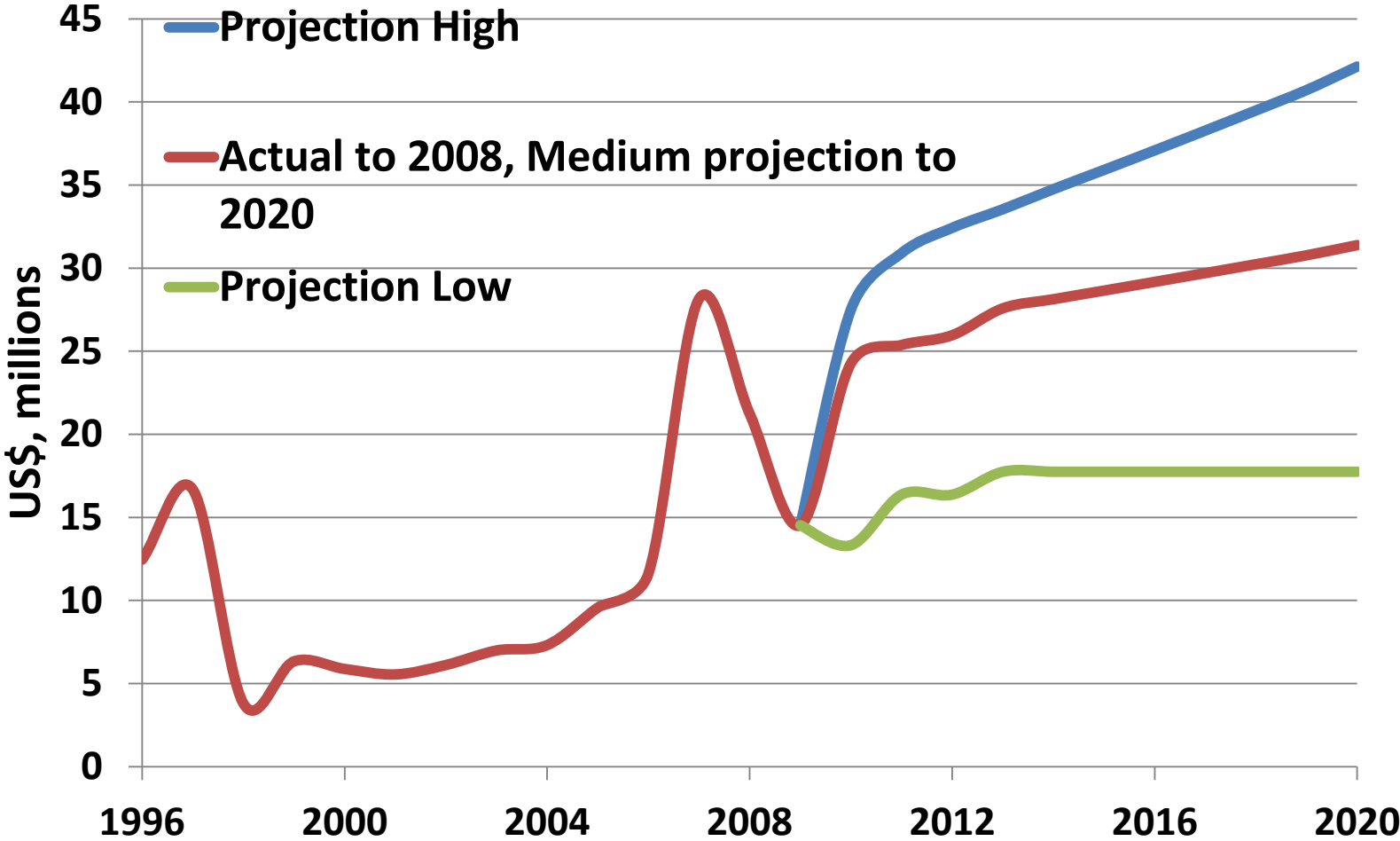
Log export tax, US\$



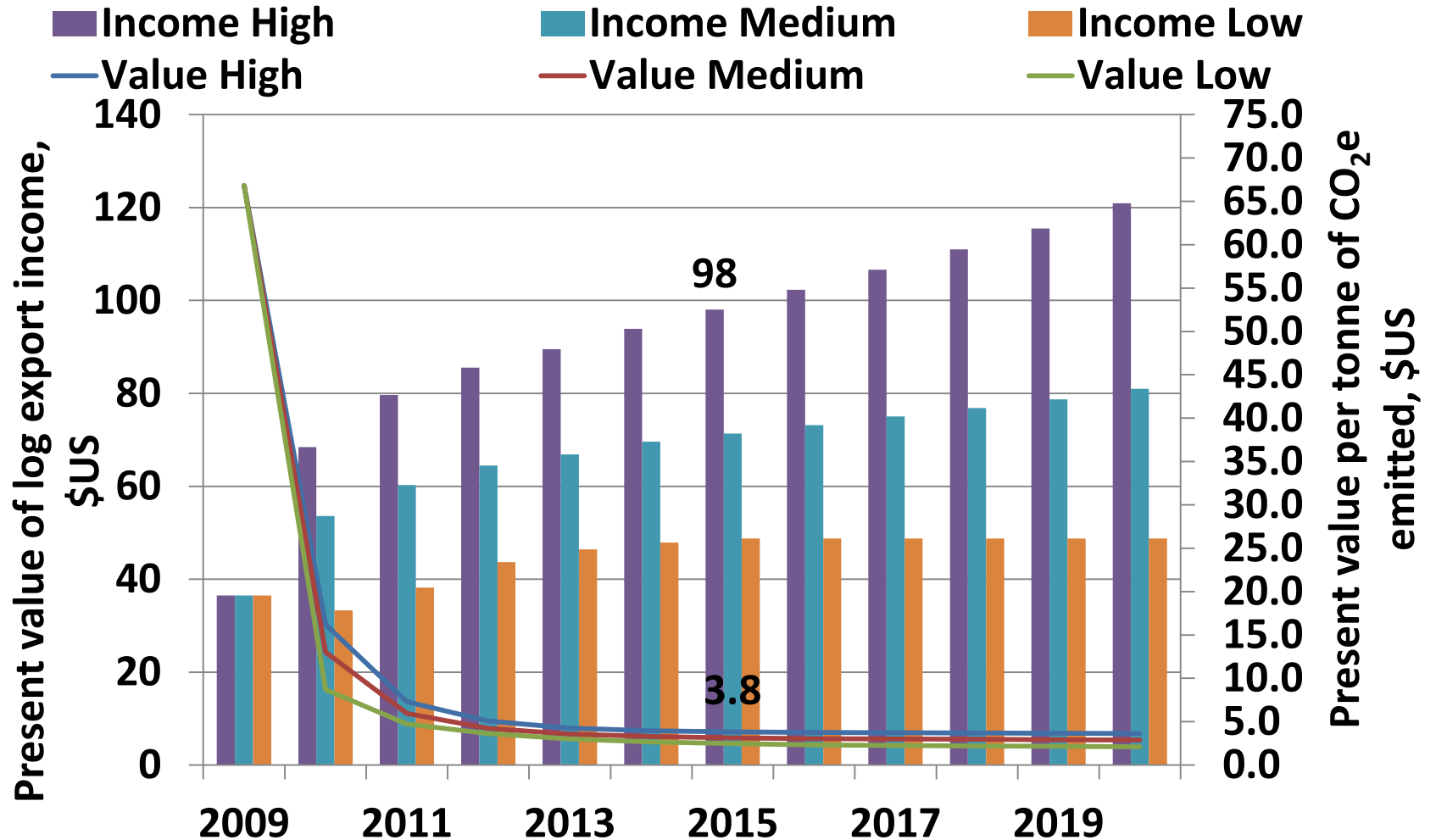
Landowner royalty, US\$



Landowner development benefit, US\$

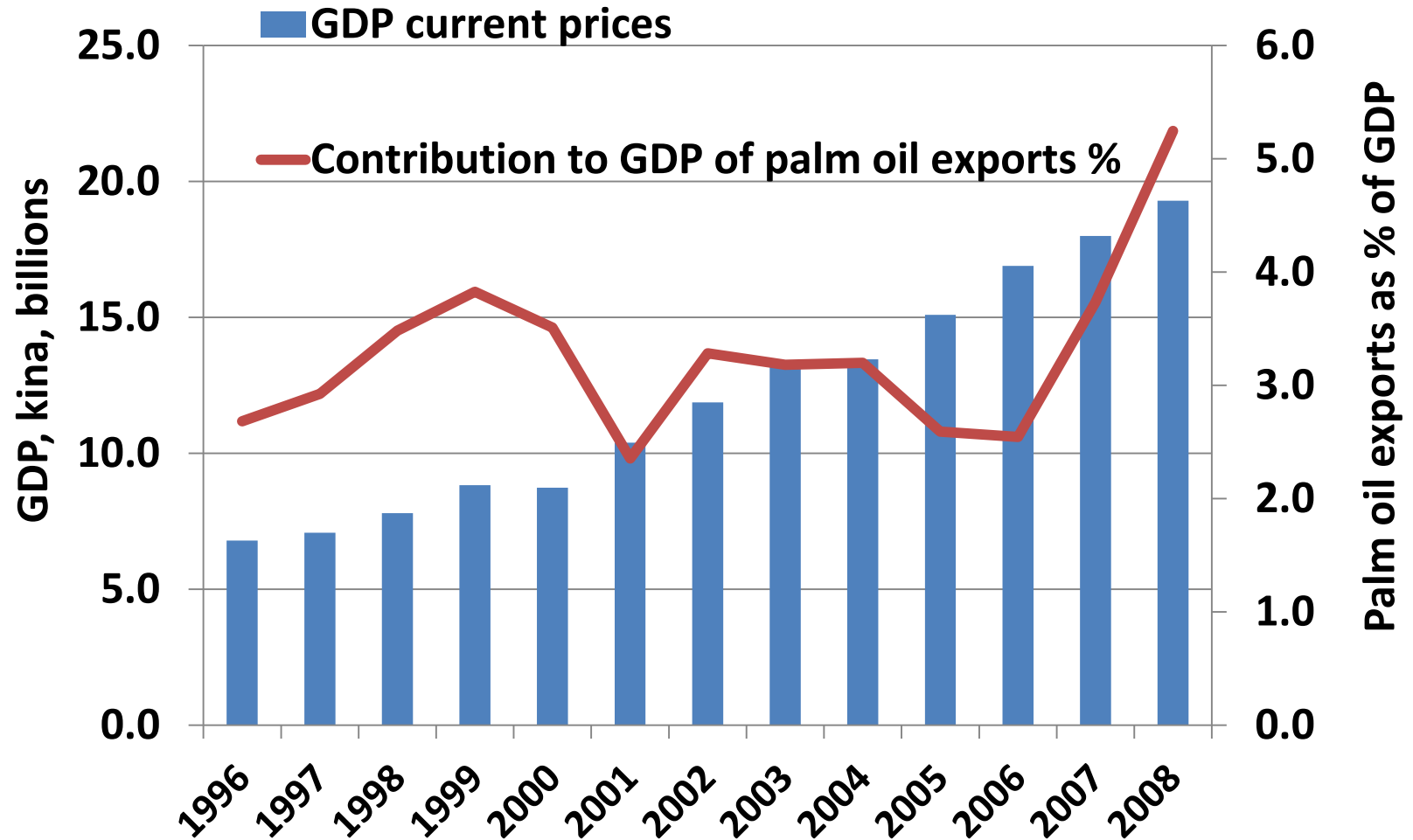


Log export income and cost per tonne of CO₂e, present values

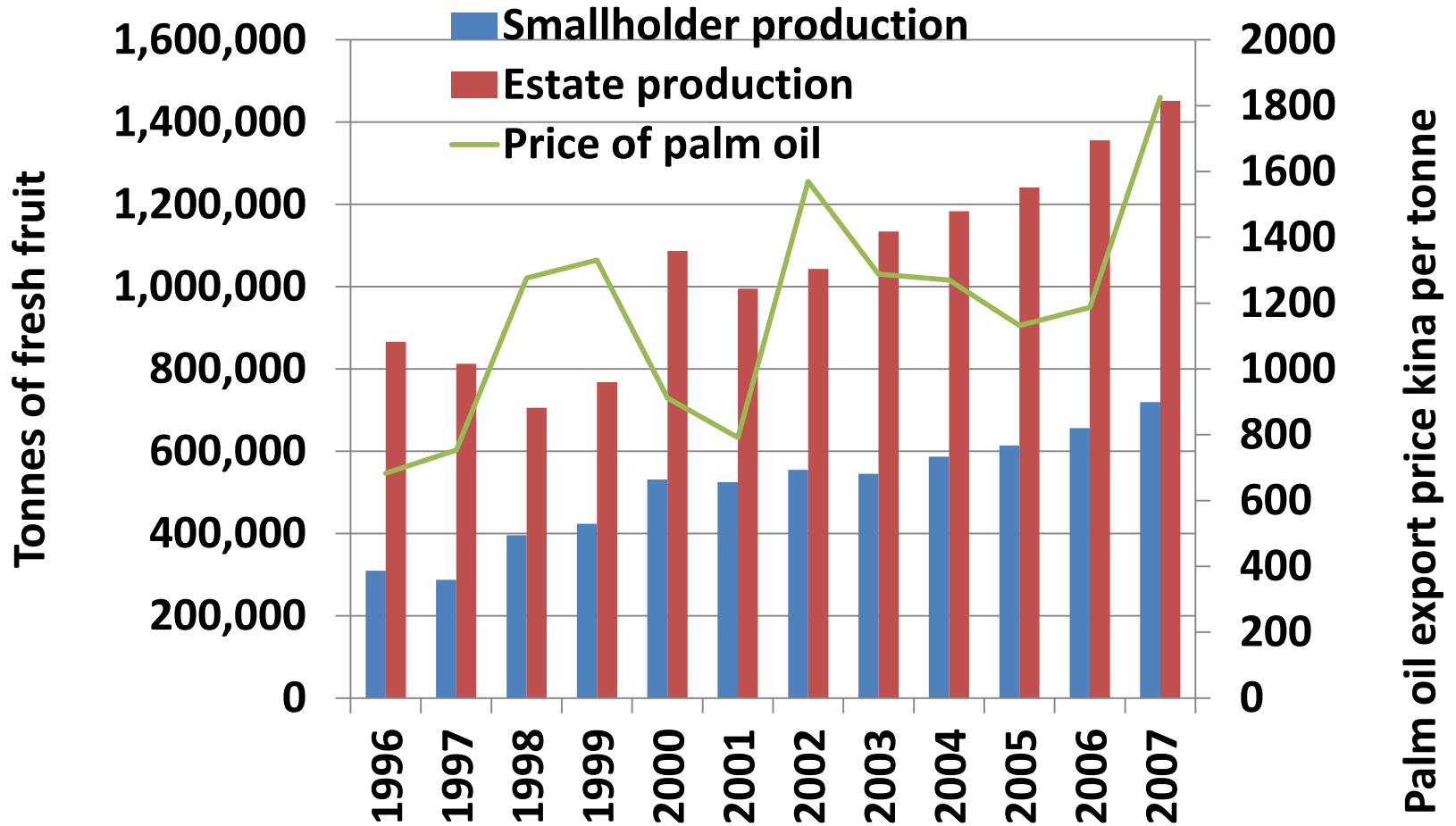


Oil Palm

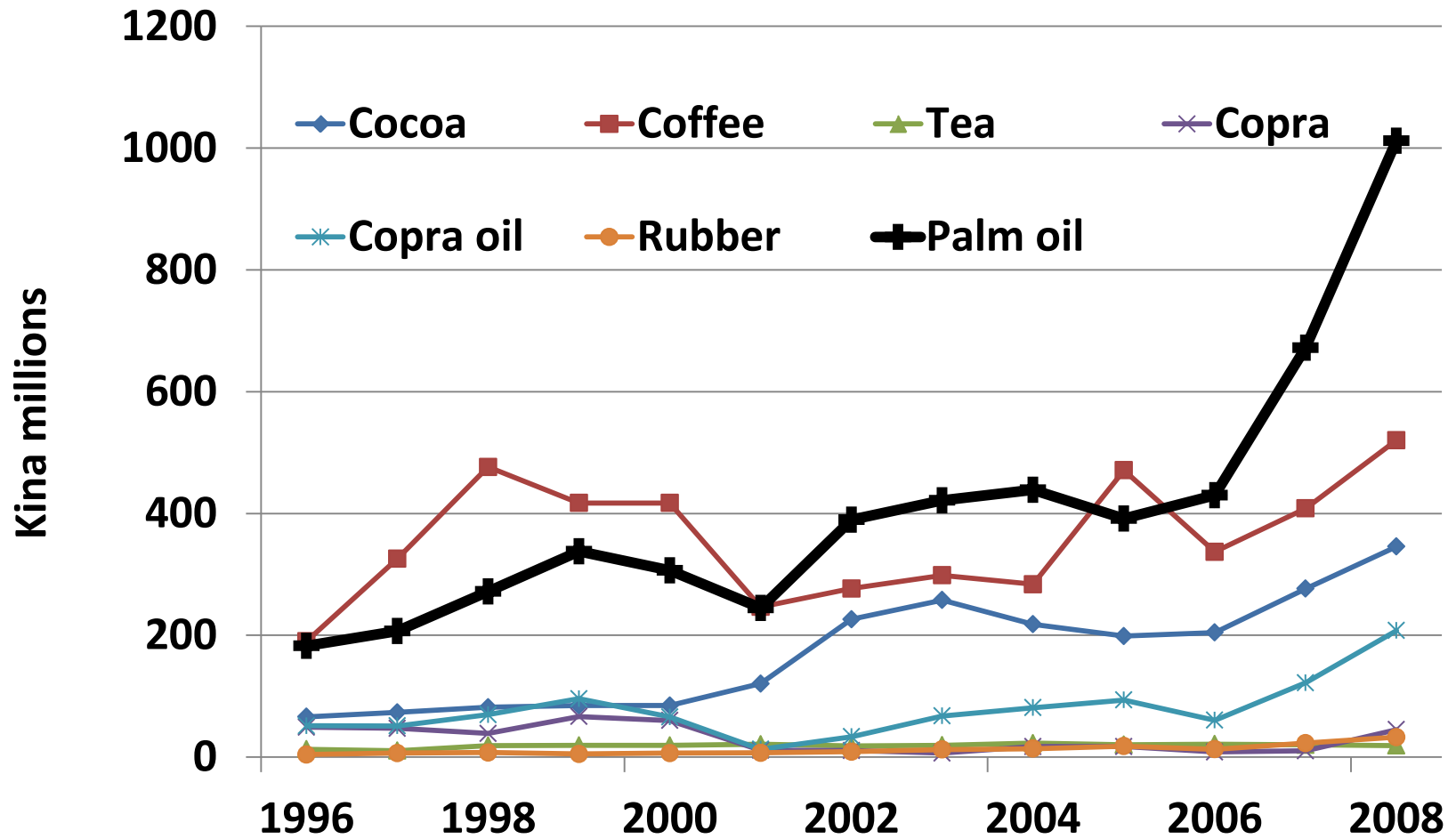
Contribution to GDP



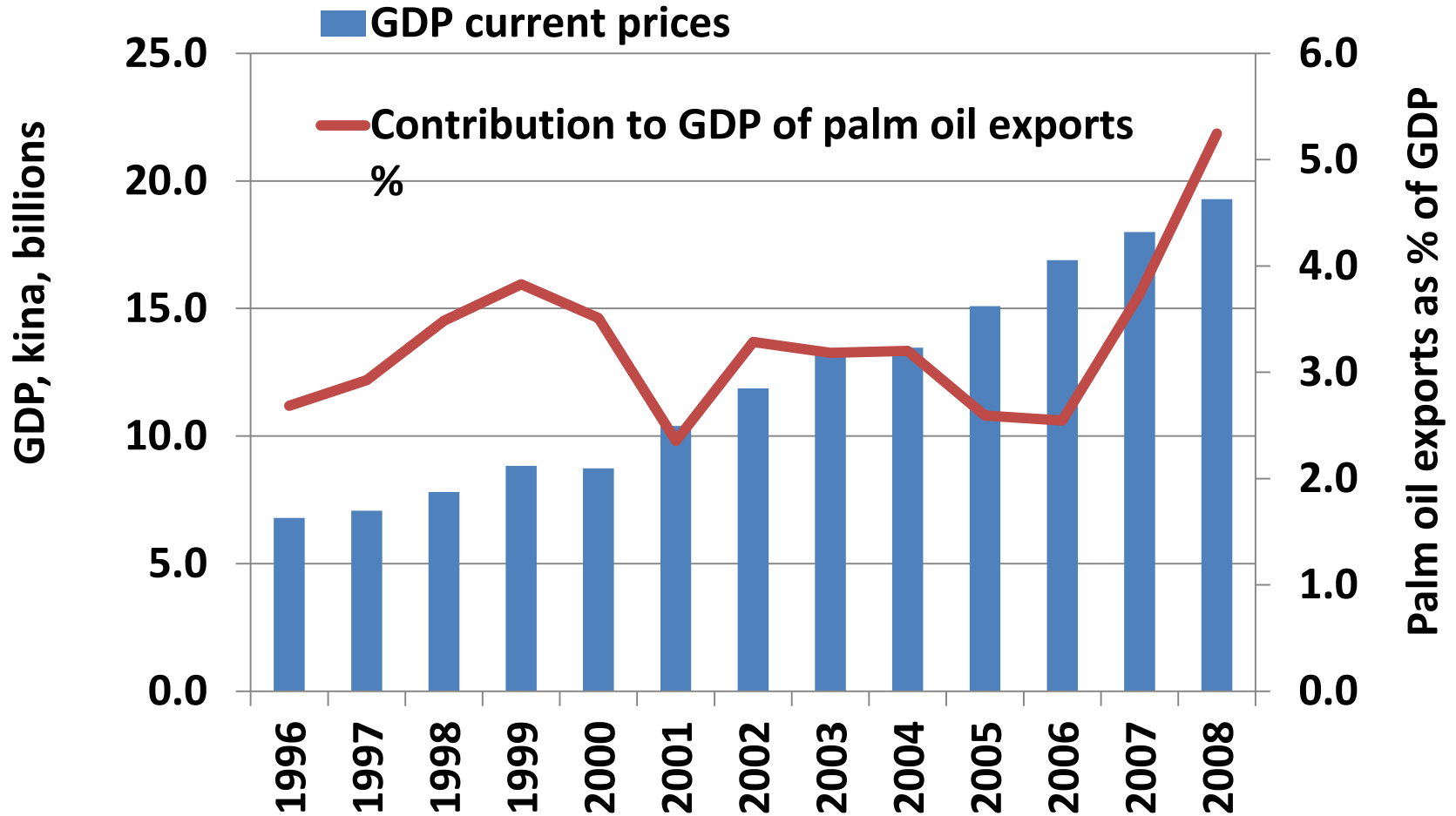
Production, 1996-2008



Value of exports



Palm oil exports contribution to GDP



Fiscal implications palm oil sector

“In 2008, New Britain Palm Oil paid K599 million in income tax (New Britain Oil Palm 2008: 33). If this tax level was replicated in other companies, the total company tax receipts from palm oil companies would be in the vicinity of K1 billion. This level of tax would represent 35 percent of all company tax receipts in 2008 and 14 per cent of all government receipts (Bank of Papua New Guinea 2009).”

Regional economic benefits (1)

“The large increase in prices in 2007 and 2008 has been reflected in the returns to smallholders. The price paid for fresh fruit to growers in West New Britain in February 2008 was K362 per tonne (Bourke and Harwood 2009: 335).

Assuming that this price was paid by all companies suggests a gross income to smallholders of about K500 million. It is estimated that about 166,000 people live in oil palm producing households (Oil Palm Research Association (2007), cited by Bourke and Harwood 2009: 331), suggesting that **incomes per person was approximately K3,000 in 2008.** Oil palm income would be in addition to income received from other smallholder cropping, small business activities and wages.”

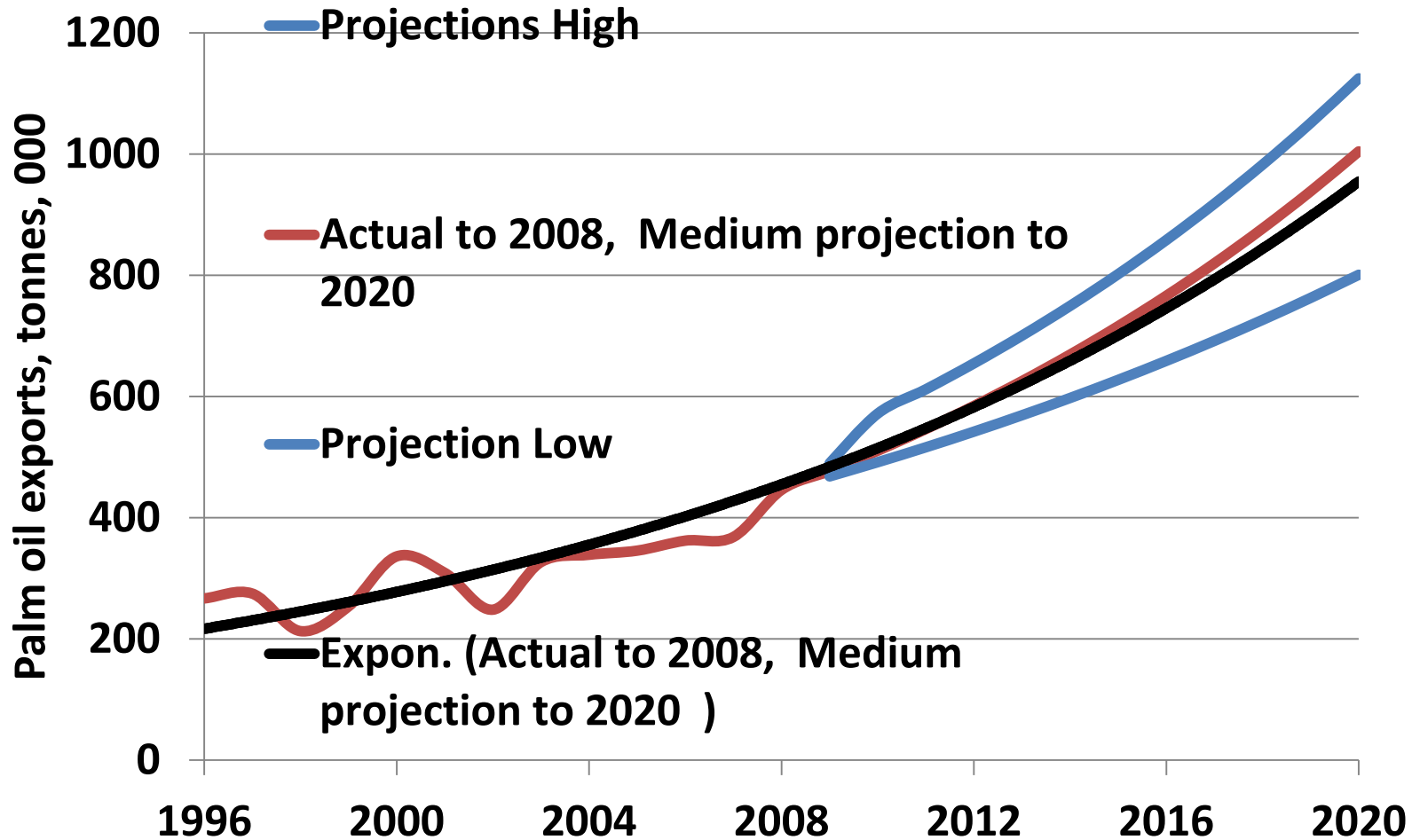
Regional economic benefits (2)

The economic benefits of palm oil production in regional areas is enhanced by the **employment** of workers on the nucleus estates and at processing mills. There is a dearth of data on the wages paid and numbers employed. However, extrapolating from the financial accounts of New Britain Palm Oil (2008: 33), on the basis that this company is responsible for about half PNG's production, suggests that **several hundred million kina was spent in Papua New Guinea by palm oil companies as a cash payments to suppliers of product together with wages to employees.** The full annual impact of this cash injection into regional economies could amount to **well over one billion kina**, after taking account of the **multiplier effect**.

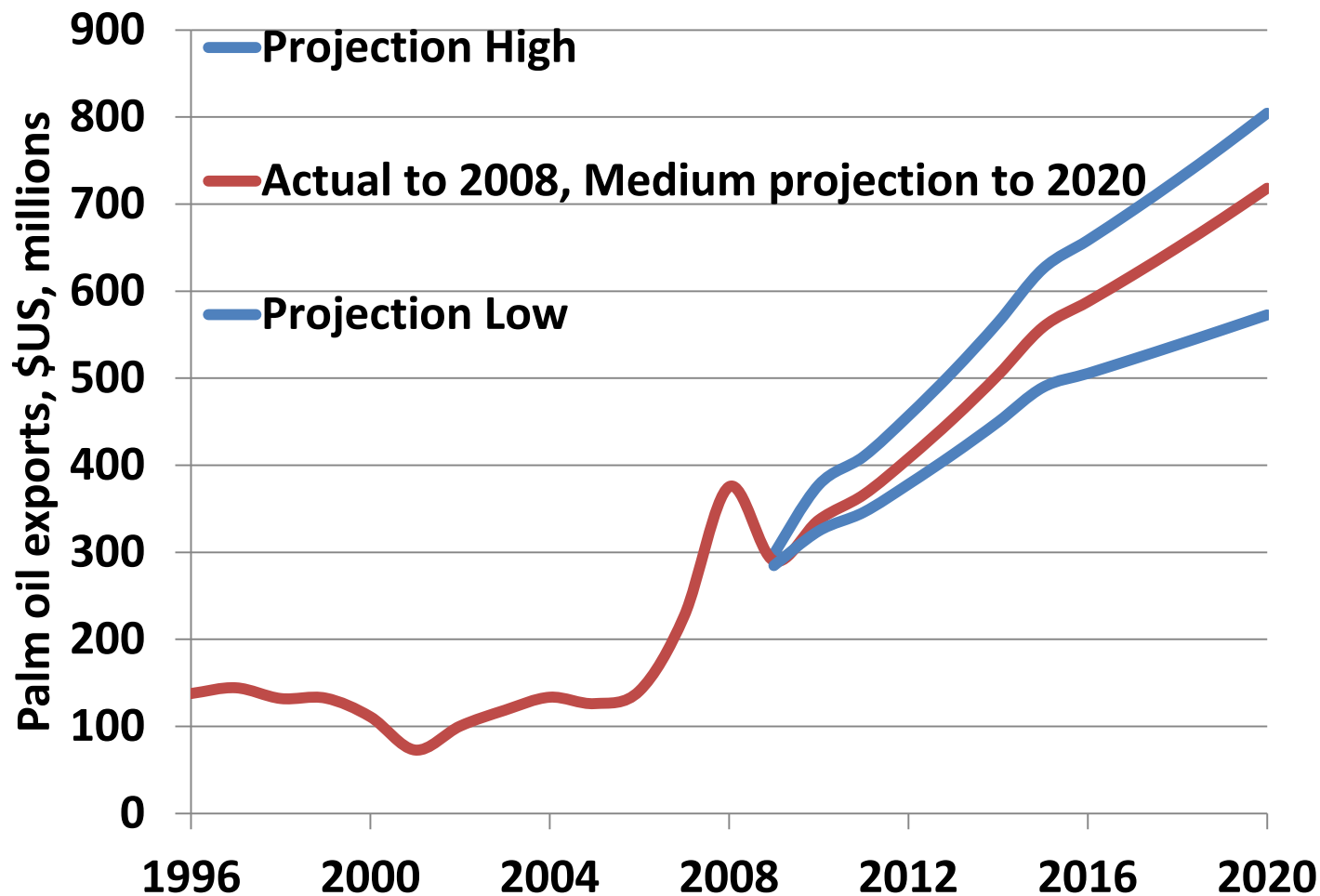
Regional economic benefits (3)

Infrastructure and social benefit

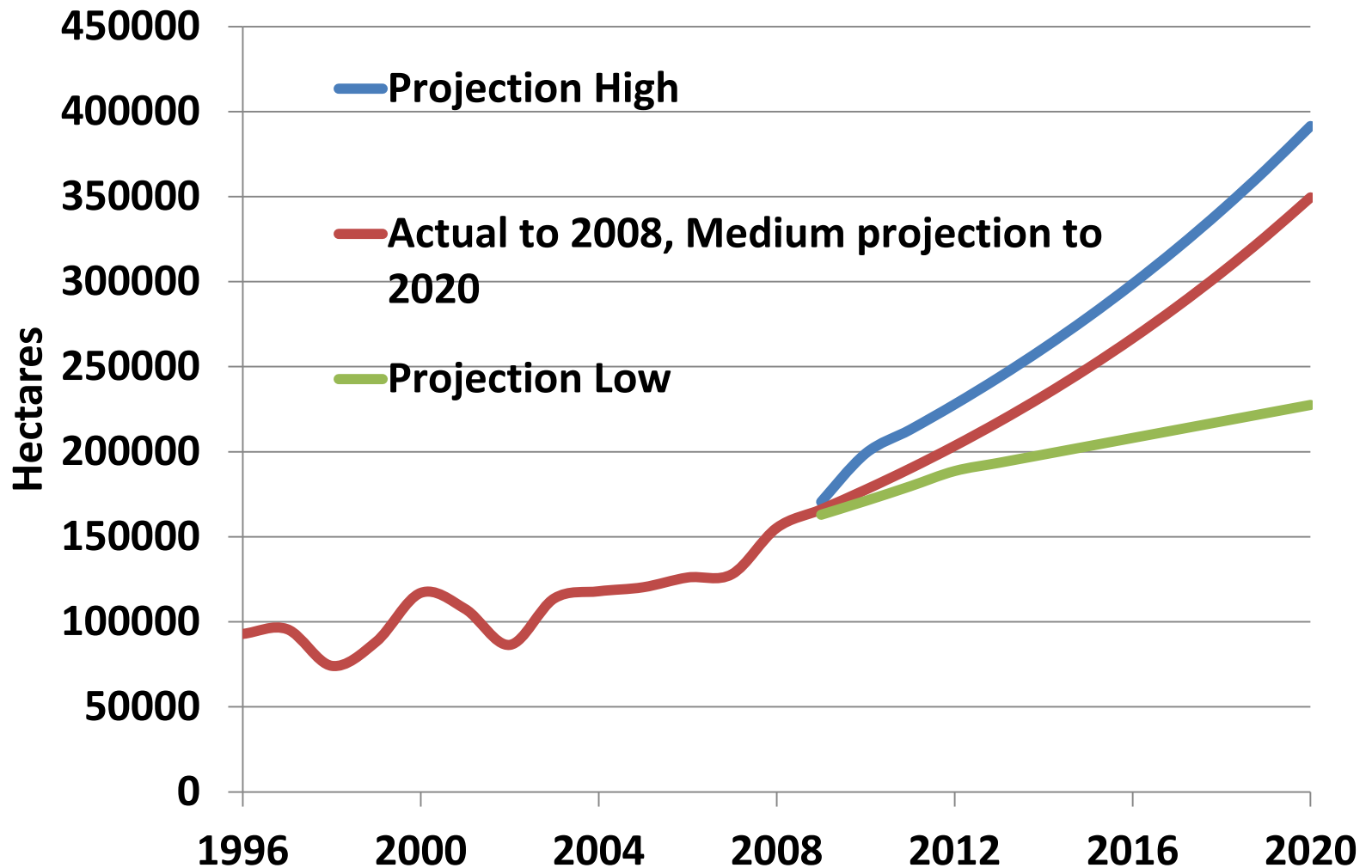
Volume of palm oil exports



Value of palm oil exports



Area under oil palm



Cost per tonne of CO₂e

P.V. of palm oil/ha

= Cost per tonne of CO₂e

Cum emissions CO₂e/T/ha