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Assessment of the Consequences of the Proposed Sale of Coillte's Timber Harvesting Rights

Final Report

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Table of Contents

Executive Summary

1. The EU/IMF financial programme includes an agreement that Ireland will raise money by liquidating certain state owned assets of marketable value in order to reduce public debt. The Irish Government has indicated that it is considering a forward sale of the harvesting rights of some of the timber that is currently owned and managed by Coillte to raise funds to this end. Coillte is wholly owned by the Irish state with a mandate to manage forests on 445,000 hectares of land under its ownership or control. Coillte accounts for more than 80% of the timber that is placed on the market in Ireland each year but this share is falling slowly and net afforestation by Coillte has been negligible over the past decade. However, Coillte output will remain vital to timber processing operations in Ireland and will comprise almost the only source of supply of large diameter mature timber for many years to come.

2. The proposed sale of these harvesting rights is not based on any assessment of the performance of Coillte, nor the market for timber. The consultants have not undertaken an efficiency audit of Coillte but note that there have been a number of rationalisation programmes since its establishment including benchmarking against best practice. Neither is the proposal part of any strategic plan for the sector and is actually in conflict with Irish forestry policy as it currently exists. Nevertheless, it is important to assess if the benefits of implementing the proposal are likely to exceed the costs of doing so.

3. There has been a big increase in the proportion of Irish forests under private ownership in recent decades. However, this change in the structure of ownership has been achieved through the expansion of private plantation rather than the sale of public assets. This policy is based on an acceptance that the supply of timber in Ireland needs to increase to provide the critical mass that would enable value-adding processing industries to develop. Internationally, there have been some limited instances of forestry privatisation programmes. Experience indicates that after privatisation efficiency in forestry operations tends to improve, but that, as has been seen in other sectors, the change of ownership is not the important determinant of performance. Rather, the realisation of gains from such policies generally requires that the change occurs in the context of a wider programme of privatisation. .

4. The timber processing sector in Ireland relies heavily on production from Coillte forests. Together, sawmills and panelboard mills employ 1,800 people (FTEs) and pay wages and salaries amounting to €90 million per annum. They export most of their output, the main market being the UK. They are well integrated into the

economy and are estimated to support about 3,000 jobs in the economy in total. The sector is also well dispersed regionally.

5. The sale of the harvesting rights would have a number of impacts for which costs can be estimated. These include the loss to the state of the stream of profits that would be earned by Coillte in the future if there was no change, the need to fund a projected future deficit in what would remain of Coillte following a sale of harvesting rights, since it will not be able to fund its future operations from timber sales, the need to recognise liabilities in the company including debt and a significant pension fund deficit, the cost of expected job losses within Coillte, and the impact of privatisation on reducing public access to forests and associated recreational benefits. Under detailed assumptions and using available data, these costs have been estimated to have a present value in a base year of €1.3 billion as shown in Table A. There may also be additional costs as a result of job losses in the processing industry if the timber procured under the harvesting rights were to be exported without processing in Ireland.

Table A: Estimated Costs of the Sale (€ million)

Loss of Funds from Coillte Profit Flow	565
Coillte Deficit Funding Requirement	313
Economic Cost of Coillte Job Losses	19
Coillte Debt Liability	172
Pension Liability	130
Loss of Amenity Value	105
Total	**1,304**

6. Thus, a forward sale of timber harvesting rights would need to generate funds in excess of this amount to make the proposal at least as good as would be likely to evolve in its absence. This value depends on a number of factors with the price paid for timber being the most important. Prices in Ireland have been in a broadly similar range to that in other European countries, but significantly higher than in the UK where particular circumstances work to keep the price well below world prices. The average price paid to Coillte for supplies to saw mills in recent years has been just over €43 per m^3 with €50 per m^3 being achieved in 2012. However, to generate a sale valued at €1.3 billion would require an average price of €78 per m^3 before inflation. This is well above current or recent prices.

7. As it would be an abrupt change to Irish forestry policy there are other risks associated with the proposal if it proceeds. These include the potential to disrupt the Irish timber processing sector, due to lack of certainty of future supply. It is possible to identify some options that might minimise the potential for such disruption and these are discussed. However, it is unlikely that these options would significantly mitigate such costs in practice.

8. The proposal would in effect bring an end to Coillte as a commercial entity. Maintaining the non-commercial activities that are currently undertaken by Coillte along with the need to manage the land and residual forests in State ownership seems to imply that Coillte would become akin to another National Parks Service. As such, it would depend on state subsidies to carry out these obligations and to undertake the reforestation of its estate.

9. The overall result is that this proposal is not just a move to liquidate timber assets but would effectively liquidate Coillte as a viable, commercial entity. However, no arguments have been advanced to support such a change in policy. This situation, together with the scale of costs set out in Table A above, suggests that the economic rationale for the proposed sale of harvesting rights no longer stands up and cannot be justified.

1. Introduction

1.1 Context of this Study

The general background for this report is provided by the economic crisis that has been unfolding in Ireland since 2007. As is well known, this crisis has resulted in a big increase in Ireland's public indebtedness and its current exchequer deficit. Such has been the extent of this crisis that Ireland finds itself in the position that macroeconomic policy is dictated by the requirements of an EU/IMF financial programme. Part of this agreed programme, which provides the specific context for this report, is a proposal that Ireland should raise money to reduce part of this debt through liquidating certain state owned national assets of marketable value. The Irish Government has indicated that it is considering a forward sale of harvesting rights to timber growing on land owned and managed by Coillte to raise some of the funds to this end.

Coillte was created in 1988 and is wholly owned by the Irish state with a mandate to manage forests on land under its control in a commercial manner. It currently owns 445,000 hectares of land within its portfolio including commercial forests, Forest Parks and areas of varying commercial value in terms of forestry output. It also owns timber processing operations and has diversified in recent years into other commercial activities such as wind farming to realise economic value from its land holdings. It is a profitable company which employs close to 1,000 people and has paid a dividend to the state in recent years.

Coillte plantations account for in excess of 80% of the timber that is placed on the market in Ireland each year but as private supplies begin to come on stream this share will fall slowly. While it is replanting 6,000 to 7,000 ha of harvested forestry land per annum and investing in supporting ancillary forestry-related businesses, net new afforestation by Coillte has fallen to almost zero over the past decade. It is projected that Coillte's share of total supply will have fallen to below 70% after 2022 and that the rate of decline in its share will accelerate thereafter falling below 50% by 2028. However, the projections indicate that this share should stabilise within the range of 45 to 55% beyond 2040. So, it appears likely that Coillte will continue to account for about 50% of the timber that is placed on the Irish market into the foreseeable future. However, this somewhat understates the importance of the supply of timber from Coillte forests. Although Coillte's share of total volume is starting to fall, almost all timber from the private sector over the next decade or more will be thinnings constituting small diameter logs. As a result, Coillte will remain the mainstay of saw mill operations and almost the only source of supply of large diameter mature timber up to and beyond 2030.

This context for the proposed sale of harvesting rights to timber currently managed by Coillte in state forests is important: the proposal is not based on any assessment of the performance of Coillte, nor the market for timber. Neither is it part of any strategic plan for the sector and it is actually in considerable contrast to Irish forestry policy as it has developed over recent decades. The problems that this proposal are designed to address did not arise out of any problem in the forestry sector, the consultants are not aware of any efficiency audit of Coillte that would suggest such a proposal would generate efficiency gains, and it does not appear that the wider potential impacts of this proposal have been examined.

Against this background, the Coillte branch of the IMPACT trade union, which represents a considerable cohort of employees in Coillte, has requested *Peter Bacon & Associates* to undertake an examination of the potential economic impact of this proposal. To date the option to dispose of these assets has been discussed as a simple transfer of assets from one illiquid use – ownership of growing timber – into liquid assets that can be put to a more needy use i.e. repayment of some debt with some investment in the domestic economy. As such, the proposal appears simply to be based on expediency in order to address pressing short term needs but without due regard to the implications either short- or longer term. However, it represents a major policy decision and, as such, should be appraised in terms its economic and social impacts. . In such circumstances, the question is to assess if the benefits of implementing the proposal are likely to exceed the costs of doing so. To date, this question does not appear to have been asked. The conclusions drawn here indicate that the proposal, if implemented, would result in a negative economic outcome compared with present policies in this sector.

1.2 Structure of the Report

Irish policy has supported the growth of private ownership of forestry over the past two decades but has been doing so by incentivising private plantations rather than selling public holdings. This proposal would amount to a radical change in this policy. Experience with privatisations has been mixed and while there are only a small number of instances of privatising forestry, these are reviewed in Section 2. Section 3 provides an overview of forestry in Ireland including a review of policy and a high level summary of the operations of the timber processing sector.

Section 4 begins the detailed assessment of the policy by examining the economic impacts that will arise. These include monetary estimates that can be readily appraised on the basis of published information but there are additional impacts where values depend on assumptions that are detailed in the text. Having set out the impact of forward selling the timber, Section 5 examines the values that can be generated.

This relies on the sale of timber and so output and price projections are important. The value that might be generated within the Irish economy from the availability of these funds is also discussed.

There are risks associated with this proposal. Some of the main variables are subjected to a sensitivity analysis but some of the most important uncertainties are not captured by a simple application of standard risk methods. This is discussed in detail in Section 6 which also includes an examination of options that might be considered to reduce the potential costs of these risks. The final section summarises the main findings of the report.

2. State Ownership and Forestry

2.1 Public Ownership and Privatisation

Although the proposal for the sale of state assets does not include a formal sale of Coillte nor the sale of the most obvious fixed assets i.e. the land on which the timber is growing, the proposal to forward sell timber harvesting rights for an extended period can be characterised as the privatisation of an asset currently in State ownership. Indeed, given the low quality – from the point of view of farming productivity – of much of the underlying land in the Coillte forest estate, it can be argued that the sale is the effective privatisation of the most valuable asset in Coillte. Starting from this, and given that many arguments have been made over the years that there are efficiency and productivity gains that can be realised by selling commercially focussed state owned operations, it is worth examining at the outset if such gains might be expected to accrue from the sale of Coillte's timber.

The arguments generally used to support privatisations can be summarised under four headings:

- Privatisation can lead to improved operational efficiency;
- New technologies, particularly in utilities, mean that public monopolies can no longer be justified;
- Sales can either raise public funds or remove liabilities for loss-making enterprises;
- Privatisation on stock markets can expand domestic capital markets.

Various economic theories that contrast the efficiency promoting impact of the profit motive in the private sector with incentives that operate in public sector bureaucracies support these arguments. However, a review of actual experience with a range of privatisations in Ireland since 1990, published by *Forfás*, has concluded that the predictions of much of this theoretical work are not borne out by experience[1]. This is because of the focus on the impact of a change of ownership on performance instead of emphasising the economic and market context that includes issues such as the structure of competition in the relevant sector. The authors conclude that '*Irish experience to date shows that privatising per se is not necessarily a panacea for any public sector inefficiencies*' (page 204).

This conclusion is supported by research on international experience with privatisation projects. OECD research on the issue concluded that '*success is*

[1] Palcic, D. And E. Reeves (2007) 'Privatisation and Productivity Performance in Ireland' in *Perspectives on Irish Productivity*. Dublin: Forfás

critically linked to the adequacy of complementary institutions' (page 18)[2]. These institutions include regulatory and competition bodies, legislation and complementary policies such as financial and labour market reforms and trade liberalisation. In summary, while there are reasons to argue that privatisation can improve the efficiency of state owned commercial operations, realising these gains depends on the policy being part of a wider integrated and supporting programme of structural reform policies. If the policy simply amounts to a change of ownership then the realisation of efficiency gains is much less probable.

Effectively, there has been a long term programme of forestry privatisation in operation in Ireland in the form of the promotion of net afforestation by private plantation owners over the past couple of decades, while net afforestation by Coillte has been negligible. As a result, private plantations now account for almost half the existing estate, and while Coillte output continues to dominate supplies on the Irish market, within a decade or so private forests will be producing volumes of timber amounting to about 50% of total output.

It is clear that the proposal to sell Coillte timber harvesting rights is not part of a structural reform package and there are no accompanying proposals to realise efficiency gains. Instead the sole rationale is provided by the objective of raising cash. As such, the proposal is better analysed as a liquidation of assets, rather than a privatisation. It is possible that efficiency gains may arise from the sale, but if such are possible then any present value will be capitalised into the price that potential purchasers will bid for the timber in an open auction. As a result, the assessment in this report concentrates not on an efficiency audit of Coillte operations and how these operations might change if the timber is sold, but on identifying the economic impact of the sale in terms of the value of Irish forestry now and into the future.

2.2 Arguments For and Against the Privatisation of Forestry

As in Ireland, the State is a major player in the forestry sector in almost all countries in terms of the ownership and management of the forestry resource. Public ownership of forestry and involvement in the sector has generally developed with two objectives: to develop commercial forestry plantations and to protect existing, often indigenous, woodlands. These roles have developed over the years, and while Coillte's focus has historically been concentrated on the first of these objectives, there has been an increasing focus on the environmental, amenity and non-marketable aspects of woodlands. This focus on commercial forestry is not surprising given Ireland's starting point in the last century with very little indigenous forestry despite having suitable land and climatic resources. This aspect remains predominant and while

[2] OECD (2003) *Privatising State-owned Enterprises: An overview of policies and practices in OECD countries.*

revenues from commercial forests have been used to develop non-timber assets, commercial timber remains the core of its operations.

A number of arguments can be made in support of a role for the public sector in the ownership of forests. Of particular importance is the long time period involved in growing mature timber. A consequence is that there are considerable risks involved for private owners with more limited time horizons. This results in the use of quite high discount rates by the private sector relative to those appropriate in the public sector. Later discussion of this issue indicates that real discount rates of 8% are often applied to forestry investments by private investors whereas the recommended public rate is 3.5% per annum. As a result, plantations that may provide an acceptable level of returns to the State could be deemed to be non-viable by private investors. In addition, there are non-marketed goods provided by forests that have value to the State but provide little or no value to private investors. These generally include the amenity value of forests, the CO_2 sequestration of the trees, and the ecological benefits of forests, particularly those that accrue from the planting of species of less commercial values. There is also a potential additional benefit to public sector forestry as it can provide a tool for the State to pursue regional, social and strategic aims that may be of no value to private investors. For example, forest employment is often concentrated in areas where alternative opportunities are limited.

However, there are also important arguments that have been developed against public ownership. Among the most important is the clear conflict between an idea that forests can be managed to simultaneously supply commercial timber and non-marketed benefits that rely on the existence of standing timber. This is not necessarily an inherent feature of public ownership as the same problem arises if the forest is owned privately. However, the conflict has not generally been perceived to be an issue for private ownership in Ireland because of a public acceptance that such forests are solely for the commercial production of timber. In addition, with an average size of just 8 hectares, the small size of Irish farm forests means that most private plantations have little or no potential to provide amenity benefits. These considerations support an argument that the public sector should own forestry that primarily provides non-timber benefits while the private sector provides commercial timber plantations. The situation in Ireland is also somewhat different due to the stark contrast between the fairly comprehensive exclusion of the public from private plantations and the *open access policy* of Coillte with respect to the general public. Given that the private plantations are mostly younger, clear-felling has been limited and so this situation could become even more pronounced in the future.

The second most important argument for privatisation arises from cost and efficiency concerns. The returns from forestry are generally not commercially viable in the absence of subsidies with the result that the state must either subsidise private plantations or own public plantations. The potential for inefficiencies to arise in

publically-owned commercial operations is widely discussed in economics literature. However, while the consultants have not undertaken an efficiency audit of Coillte, it is noted that Coillte has undertaken several rationalisation programmes since its establishment in 1988 including benchmarking against best international practice. Furthermore, the organisation outsources much of its forestry operations including harvesting and replanting. It is also important to note that improving efficiency is not an objective of the proposed policy and that, based on international experience, the lack of a supporting programme of restructuring means that gains are unlikely to be realised from simply changing ownership.

A third argument is that State owned forestry companies may act as monopoly suppliers of timber. This may artificially push up the domestic price of timber. In contrast it may even be the case that public assets could be used to supply timber at discounted prices to privately owned processors to inflate their profits. Coillte has effectively been in the position of a monopoly supplier of mature timber in Ireland, but it is certainly not the case that the processing sector has seen abnormally high profits. Indeed, the sawmill sector has been characterised by low investment and job losses in recent years. Coillte also bought previously under-performing panel board mills with the clear objective of keeping then open to use its timber output. These board mills now export about 85% of output suggesting that they are operated efficiently and competitively. Most importantly, while Coillte continues to dominate supply, Irish forestry policy has created the basis for supply from private plantations in recent decades with the result that this position will begin to change over the next decade.

This means that the main arguments that have been seen in favour of forestry privatisation internationally do not apply in the case of the current Irish proposal. Indeed, in relation to the first argument, the proposed sale would likely bring the conflicting aims much more to the fore as the commercial approach would dominate.

2.3 International Experience of Forestry Privatisation

While recognising the difficulties of characterising the proposed sale as a privatisation program, some useful insights can be gained by reviewing outcomes where specific programmes of privatisation have been introduced to previously state-owned forestry sectors. The number of such programme is limited and there are difficulties with inferring conclusion for Ireland as none of the available instances are directly comparable to Ireland given different starting conditions such as the structure of ownership of the forest estate, forest diversity and the stage of economic development. However, there are some common issues. Not least is the decision on what should be privatised, and political sensitivity regarding the disposal of large tracts of land is not confined to Ireland. As a result, some privatisations have been

confined to timber and supporting infrastructure such as processing mills and logistics facilities. Furthermore, programmes have had to recognise the difficulties that arise due to the long term nature of timber growing and the need to ensure reforestation. These issues partly explain why forestry privatisations have not generally been given priority while privatisation programme for utilities such as energy and telecommunications, and other capital intensive businesses such as ports and roads, have been more widely implemented.

Whatever outcome the various arguments might suggest, the situation is that a large proportion of the forest estate continues to be owned and managed by the state in most countries. However, there have been some instances of forestry privatisation.

New Zealand

Possibly the most ambitious privatisation programme in forestry was that undertaken in New Zealand which resulted in the sale of the entire non-indigenous forest plantations along with the processing sector in the early 1990s. At the time, New Zealand was undergoing a widespread programme of privatisation and liberalisation of its economy. The rationale for forestry privatisation was based mostly on arguments concerning the need for greater efficiency and the need to address the perceived conflicting roles of commercial and amenity forests. The privatisation took place much more slowly than initially expected as a result of difficulties that arose including court challenges.

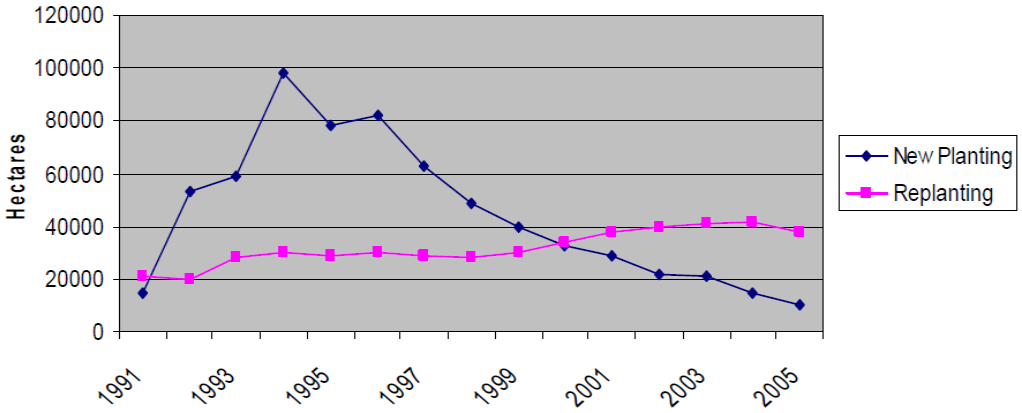
The initial impacts of the privatisation were a fall in employment but an increase in efficiency and profits in the sector. Investment in wood processing also rose. This contrasted with most other sectors of the New Zealand economy at the time where performance was poor. However, foreign ownership of forestry increased from less than 2% to 48% in less than a decade[3] and it is not clear to what extent the apparent efficiency gains arose as a result of the change in ownership or from external factors, most notably a buoyant world market for timber. What was soon clear however was that the flip side of efficiency gains was job losses and that these were often concentrated in already fragile regions, even extending to the collapse of communities that depended on the forestry industry.

The longer term effects of the privatisation are less encouraging. The economics of exporting timber from New Zealand turned less favourable from about 2003 and some of the earlier efficiency gains were lost[4]. Furthermore, as shown in Figure 2.1, while replanting has risen following the increased rate of harvesting, the level of new planting which rose at the time of the privatisation collapsed to below pre-privatisation levels.

[3] O'Loughlin, C. 'Decentralisation within the New Zealand Forestry Sector: Financial and Social Implications'. Centre for International Forestry Research

[4] O'Loughlin *op. cit.*

Figure 2.1: Forestation and Reforestation in New Zealand (1991-2005)



Source: O'Loughlin, Centre for International Forestry Research

In his review of the New Zealand experience, O'Loughlin concludes that the suddenness of the changes that were implemented in New Zealand magnified the negative social impacts leading to considerable resentment among the general population. While the experience suggests that the private sector did improve the management of the estate, the adverse move against New Zealand exports after 2003 was more than enough to reverse these gains suggesting that the benefits were fragile.

The structure of forestry in New Zealand is notably different from in Ireland and differs in a manner that would have suggested a good opportunity for a successful privatisation programme. In New Zealand, 99% of timber is harvested from plantations of introduced species. These cover 1.8 million ha of land. The privatisation was limited to these forests. However, indigenous forests cover 6.6 million ha – 79% of the total forest area – but supply only a small amount of timber being managed for amenity, conservation and environmental objectives. The situation in Ireland is almost the mirror image with the majority of forests, including most of the forest managed by Coillte and most of the forests that exist in forest parks, comprising introduced species that are managed primarily for timber production. Unlike the case of New Zealand, while it might be possible to grade forests according to their amenity values, there are no clear divisions in Ireland between these areas and commercial timber plantations. In addition, the New Zealand forestry sale was taken in the context of a much larger reform of the economy, including reform of the forestry sector and a strategic change of direction for the industry. This is clearly not the case in Ireland where the proposal appears to envisage a quick sale to raise cash with no reference to Irish forestry policy as it has been developed and pursued. Finally, the New Zealand forestry sector is targeted towards exports while Irish forestry primarily serves demand for timber on the Irish market with value added products being exported.

The UK

Public sector forestry in the UK is managed by the Forestry Commission. While it harvests timber from this land, the role of the Commission is less commercial than in the case of Coillte with a large annual subvention provided from the exchequer. This promoted the Conservative Party Governments of the 1980s to include forestry in its greater plans for privatisation. Eventually, about 10% of the Commission's holdings were sold, including the land, mostly comprising small plantations that were considered to be inefficient. At the same time, the Forestry Commission continued to buy land for forestry. As a result, the programme more resembled a rationalisation strategy to make the Forestry Commission more commercially oriented rather than an outright privatisation. It is worth noting that Coillte has also sold some small plantations on the basis of this rationale in recent years. There was considerable political and local opposition to forest privatisation in the UK and eventually the policy was formally restated as a rationalisation programme.

Thus, privatisation was put on hold but the idea has been revived under the current Government in the case of England where the Forestry Commission has a relatively modest holding totalling 150,000 hectares. This amounts to 18% of forests in England. The proposal has been presented as a means to transfer control 'from big Government to big society' rather than any argument concerning efficiency or funding. Current policy also emphasises that privatisation would be undertaken in a manner that would safeguard the non-timber values of the estate. However, there has been considerable opposition and the proposal appears to be stalled for the moment.

Other Areas

Chile underwent an extensive economic liberalisation programme following the military coup in 1974 and forestry was included in the changes. The policy there was a full sale of the forests and infrastructure with the result that control largely passed to foreign owners. As in the case of New Zealand, there were efficiency gains and overall growth. However, as a result of the speed of privatisation and lack of planning there are also important deficiencies emerging that could affect future performance. These include lack of investment to develop associated infrastructure, difficulties for the processing sector as supplies are not secured, and environmental problems as commercial operations manage the forests for maximum profits.

Proposals were also developed for the sale of areas of forestry in some parts of Australia. While a number of Australian states initially formulated proposals to follow the example that was set by New Zealand in terms of forestry privatisation, only Victoria has pursued this policy to any notable extent. There are some similarities with New Zealand with a large indigenous forest estate in public ownership and smaller commercial forest plantations of mostly imported species. The plans relate to the latter plantations only. The process followed by Victoria was to

vest the commercial plantations, totalling 0.6% of the State's land area, in a state corporation – the Victorian Plantations Corporation (VPC) – in 1993. Since then there has been considerable controversy in this area and the VPC has pursued a largely commercial remit including managing forests and selling some timber rights. Interestingly, some of these sales have been accompanied by conditions to preserve the positions of existing staff. Overall, while the policy has introduced a more commercial focus to public plantations in Victoria, it falls short of a comprehensive privatisation programme and there has not been a major change in the ownership of forests overall.

Proposals have also been developed in recent years to forward sell timber on state forests in South Africa. These have been developed following examination of the way in which the plantations are managed with a view to improving efficiency and to grow output. There have been reports of political opposition to the proposal and no sales have taken place to date.

Following his review of experience with forestry privatisation in a number of countries, Hurditch (1992) found that there were a number of areas where forestry privatisation policies can be criticised including[5]:

- The price that was obtained;
- The lack of environmental controls and uncertainty regarding replanting;
- A negative impact on supplies to sawmills that affected viability;
- Environmental issues; and
- Concerns regarding the transfer of ownership to foreign interests.

Overall, pursuing a quick sale without placing the privatisation in a properly planned programme of change magnifies the problems and he concludes that '*if a quick sale is required, either to supply an immediate cash exigency or for political reasons, valuations may be considerably lower*' [than if a longer term programme is adopted]. While most of the lessons from experiences elsewhere may be situation specific, this would appear to be one lesson of particular relevance to Ireland.

[5] Hurditch, W. (1992) *Problems of Public Forestry and the Socio-economic Implications of Privatisation*. Oxford Forestry Institute Occasional Papers No. 42.

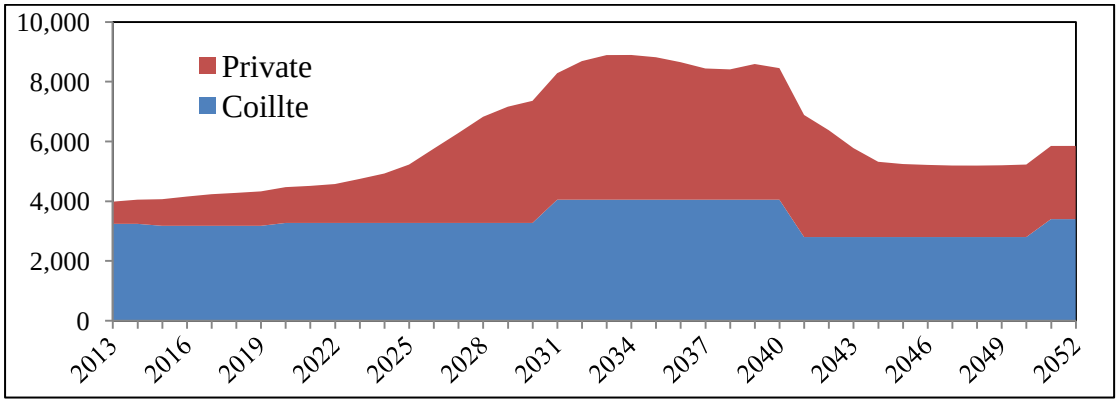
3. Overview of the Forestry Sector

3.1 Forestry in Ireland

Ireland's total forest estate amounted to just over 750,000 hectares in 2011, or 11% of its total land area[6]. Coillte manages a total estate of 445,000 of which 351,000 ha are currently afforested. The non-forested area of 94,000 ha is mostly accounted for by mountain tops, water, open spaces and areas of biodiversity. The remainder of Ireland's forests are in private plantations most of which are less than 15 years old. A total of 2.9 million m^3 of roundwood were harvested in 2011 while Coillte roundwood sales amounted to 2.35 million m^3. Thus, sales by Coillte account for over 81% of roundwood placed on the market[7]. Furthermore, given the relatively young age of private plantations, Coillte output accounts for almost all the supply of timber at medium to large log diameters. Felling licence data indicate that almost all harvesting on private plantations is sourced from thinnings, with clearfell licences issued to private suppliers accounting for only about 4% of the total issued[8].

Timber in Ireland is sold in an open auction process that was developed by Coillte. However, such is the dominance of Coillte in total output that there is little competition in terms of the annual supply of timber. While output from the private sector will begin to grow rapidly over the next decade, Coillte will remain the dominant supplier of roundwood and the largest source of timber for the next decade or more. This is the case regardless of the level of private afforestation in the future as shown in Figure 3.1.

Figure 3.1: Timber Output Projections (M^3 per annum)



It will be the latter part of the next decade before the supply of timber from the private sector's forests will begin to match Coillte's output and most of the timber produced

[6] Casey, J. and M. Ryan (2012) Situation and Outlook for Forestry 2011/2012. Teagasc
[7] Coillte *Annual Report 2011*, and Irish Forestry and Forest Products Association (2012) *An overview of the Irish forestry and forest product sector*
[8] *Casey & Ryan (2012)*

from private plantations in this period will continue to be from thinnings. However, net afforestation by Coillte since 2002 has been negligible while the private sector has continued to plant 8,000 to 10,000 per ha over the past decade, although this is down from earlier rates and below policy targets. Because net afforestation by Coillte has declined so rapidly, Coillte's long term supply curve is relatively flat and, beyond 2030, the supply from private plantations will be larger for a period with both sources being broadly similar over longer time periods, depending on private afforestation rates in the future.

It is estimated that the direct output of the forestry sector in 2010 was €379.8 million with value added in the sector totalling €31.7 million or 0.024% of GNP[9]. However, because the forestry sector is well integrated into the economy there are considerable linkages and it is estimated that the overall value of forestry to the economy in 2010 was €673 million. Direct employment in forestry was 3,125 with an estimated additional 2,406 supported by multiplier effects. These estimates do not include the processing or other associated sectors which are discussed below. Forests also have a beneficial impact on Ireland's greenhouse gas emissions and COFORD research estimates that Irish forests absorb about 4 million tonnes of CO_2 annually, equivalent to about 6% of Ireland's greenhouse gas emissions[10]. However, recent afforestation rates may not be sufficient to maintain this in the future.

3.2 Ireland's Forestry Policy

The foundation statement for current Irish forestry policy is the 1996 *Strategic Plan* for the development of the sector[11]. At the time, Ireland's productive forest area stood at 464,000 ha with a further 100,000 ha of wooded areas. About 70% of the total was under the ownership and management of Coillte. At the time, Coillte accounted for 2.1 million m^3 of the total timber output of 2.2 million m^3. Thus, forestry existed largely as a function of the state. However, Ireland remained among the least afforested countries in Europe and the main objective of the *Strategy* was defined as:

> *To develop forestry to a scale and in a manner which maximises its contribution to national economic and social well being on a sustainable basis and which is compatible with the protection of the environment.*

The main policy aim was to achieve a productive forest area of 1.189 million hectares so as to provide a level of timber output that would be sufficient to achieve the required critical mass in the industry in Ireland. This was to be achieved by a major

[9] Ní Dhubháin, Á., C. Bullock, R. Moloney and V. Upton (2012) *An Economic Evaluation of the Market and Non-Market Functions of Forestry*
[10] Hendrick, E. And K. Black (2008) *Climate Change and Irish Forestry*
[11] Department of Agriculture, Food and Forestry (1996) *Growing for the Future: A Strategic Plan for the Development of the Forestry Sector in Ireland*

shift in policy replacing the concentration on afforestation by the State with farm forestry as the principal vehicle for growth. The production of timber was clearly seen as the main potential economic benefit despite recognition of the importance of environmental sustainability and the encouragement of planting by the private sector was prioritised.

A notable objective of the *Strategy* was an emphasis on incentivising farmer participation in forestry with a targeted annual output of 10 million m^3 based on a productive forest estate of 1.2 million ha by 2030. However, the strategy has fallen short in relation to some of its main objectives. Most importantly, planting is short of targets and the targeted ratio of public to private afforestation has not been achieved. The *Strategy* had argued that the identified targets were important to achieve sufficient critical mass in the timber industry and it argued that if this was not achieved it would undermine the economic value adding potential of the sector. However, the overall requirement of net aforestation amounted to 1% of Ireland's land every three years and meant that forestry increasingly competed with agriculture for land. The annual shortfall was also a result of a collapse in State planting following the decision of the European Commission that *Coillte Teoranta* is a public entity and as such was ineligible for the forestry premium provided for in Article 2(1)(c).

Irish forestry policy therefore has been the effective privatisation of the forest estate, not by the sale of existing plantations but by encouraging private planting through a range of supports while public afforestation has been negligible. However, this is a long term process and it is the case that timber production remains primarily a function of Coillte operations in harvesting mature timber from public forests.

The ability of the existing supports and the required measures to achieve targets was the subject of a Review of policy in 2004[12]. This review reaffirmed the main targets of the *1996 Strategy* but aimed to rebalance the view of the main value of forestry by emphasising the non-timber assets contained in forests. It recommended that forestry policy should be implemented in a manner that recognises its importance as a sector that produces public goods and that greater attention needed to be paid to features of plantations that accommodated such values, for example, the species planted, access to a public road, the amount and type of forest in the vicinity, and environmental constraints. Above all, the Review emphasised the need for consistency in forestry policy reflecting the analysis undertaken in earlier work[13]. Overall, the *Review* foresaw that increased private ownership of Irish forestry would be continued through net private afforestation and Coillte management of the existing state forests.

[12] *A Review and Appraisal of Ireland's Forestry Development Strategy*. Report to Department of Agriculture, Food and Forestry by Peter Bacon & Associates in association with Deloitte Corporate Finance

[13] *Forestry: a Growth Industry for Ireland*. Report to IFA, IFIC and COFORD (June 2003) by Peter Bacon & Associates

It is to be expected that policy will be periodically subject to review but this general approach remains the cornerstone of forestry policy. The most recent publication on medium term forestry policy discusses background issues including the performance of the sector[14]. However, while it identifies that there are some weakness, most notably the failure of private growers to reach the afforestation targets that were identified as necessary to achieve the critical mass of supply required by the processing sector, there is no indication that any major change in the direction of policy is either deemed necessary or foreseen. Neither is there any indication in publications by Teagasc that the forward selling of Coillte timber represents a strategic development and possible impacts are not factored into plans for the development of the sector[15]. Consequently, the proposal to sell Coillte harvesting rights has been developed with no reference to long standing forestry policy in Ireland and no official analysis of its possible impact has been provided.

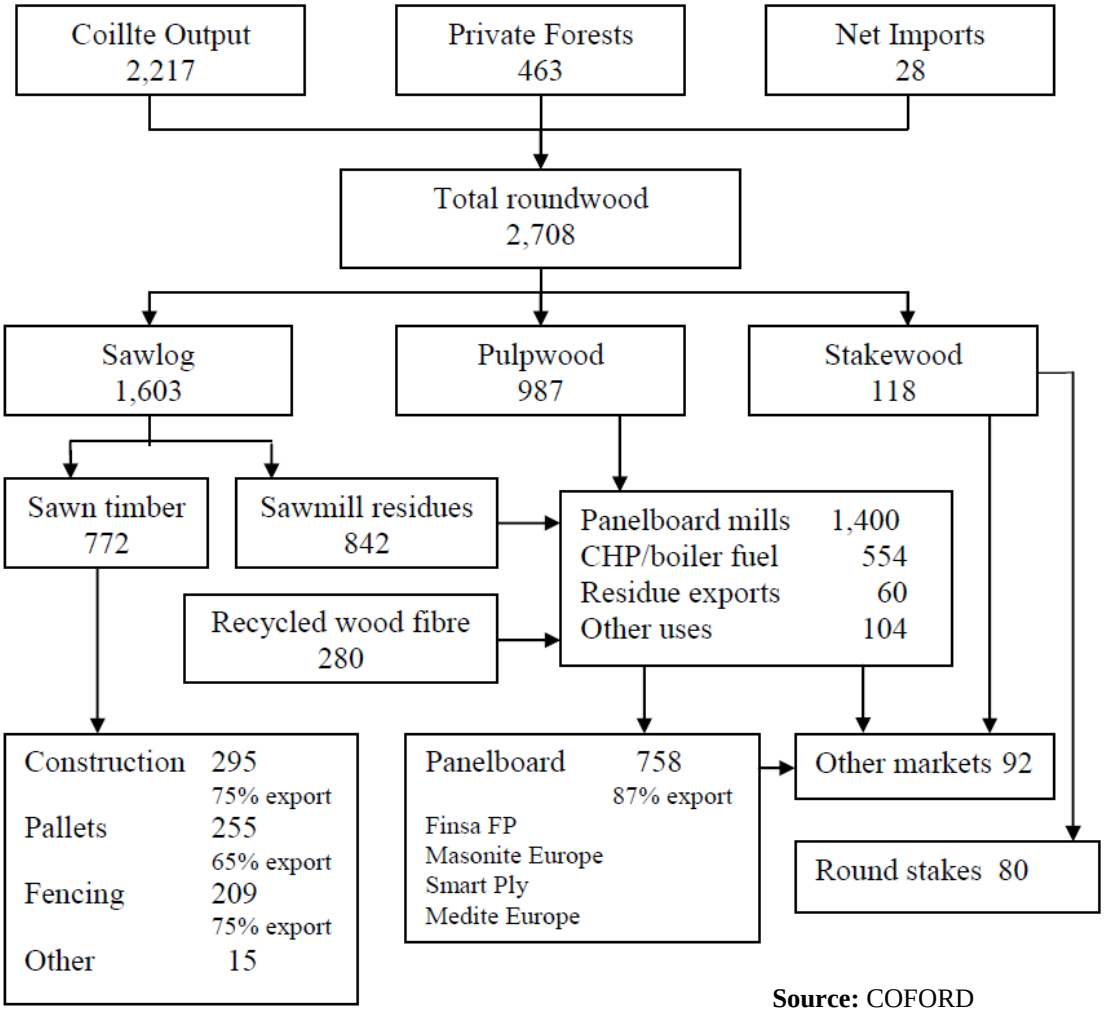
3.3 The Timber Processing Industry

Almost all the timber output from Irish forests is used to supply domestic demand. This demand is comprised of sawmills, panelboard mills, firewood and the emerging biomass industry. Figure 3.2 illustrates woodflow in Ireland based on COFORD estimates[16] for the use of total roundwood production of 2.7 million m^3 in 2010 with recycled wood fibres adding a further 280,000 m^3 giving a total of just under 3 million m^3. This shows that sawn timber for use in construction, pallets and fencing used 28.5% of the roundwood produced (25.7% of total input), panelboard mills used 47% of the total in the form of pulpwood, sawmill residues and recycled fibres, and fuel used 18.5%. While most fuel products are used in Ireland, 87% of the output of panelboard mills and 72% of sawn timber output was exported.

These data refer to 2010 production levels. It is estimated that the volume of roundwood harvested in 2011 was just under 2.9 million m^3. Of this 2.7 million m^3 was industrial roundwood with the remainder being used for firewood indicating that the aggregate estimates will be similar to above[17]. The total value of forest products exported in 2011 is estimated at €286 million.

[14] Department of Agriculture Food and the Marine (2009) *Irish Forestry Sector*. 2020 Strategy Background Paper
[15] Teagasc (2008) *Forestry: Road Map for 2018*
[16] Figure based on Knaggs, G. And E. O'Driscoll (2012) *Woodflow and forest-based biomass energy use on the island of Ireland (2010)*. COFORD Connects, No. 27
[17] Irish Forestry and Forest Products Association (2012) *An overview of the Irish forestry and forest product sector 2012*

Figure 3.2: Woodflow for the Republic of Ireland for 2010 (000m^3, overbark)



Source: COFORD

Timber processing comprises a substantial industrial sector. Table 3.1 shows data for the main economic metrics[18].

Table 3.1: Economic Overview of Timber Processing Sector

	Sawmills	Panelboard mills
Domestic inputs (€ million)	263.5	201.8
Direct employment (FTEs)	996	805
Wages & salaries (€ million)	40.7	49.3
Total jobs supported (FTEs)	1,713	1,304

Note: Total inputs refers to domestic inputs only and represents the value of expenditure by these sectors in the economy. The total for jobs supported includes direct employment along with indirect and induced employment. The relevant employment multipliers are 1.72 for sawmills and 1.62 for panelboard mills.

[18] Derived from Ní Dhubháin et al (2012) Tables 12 to 16. The 'Other wood products' sector is also assessed by the authors but is not included here given the core topic in this report since it is assumed that this sector would be able to source timber inputs irrespective of the proposed change in policy.

These industries provide direct employment for 1,800 people full time (FTEs) and pay wages amounting to €90 million per annum. Total expenditure in the Irish economy amounts to €465 million per annum and the multiplier effects for both expenditure and employment are substantial.

Biomass for energy production is also an increasingly important use for forest output. Demand for forest based biomass in 2011 is estimated to have been in the region of 1.6 million m^3 and this demand is forecast to almost double by 2020[19]. This is expected to greatly increase demand for forest output in Ireland with projections indicating that output will be insufficient to meet this level of demand until about 2030. However, this level of demand would depend on biomass usage reaching policy targets.

A further important issue in relation to the economic impact of forestry is its regional dispersion. The work by Ní Dhubháin *et al* estimated that for the forestry sector as a whole, the BMW region accounted for just under 34% of output and for over 37% of total employment with 1,169 jobs in this region directly in forestry and forestry related production making it an important source of employment and value-added in this region.

[19] Casey, J. (2012) *Outlook for Forestry*. Teagasc

4. Assessing the Impact of the Proposal

4.1 Approach to Assessment

When assessing a policy proposal, the first task is to identify a counter-factual against which the proposal can be assessed. In the case under review here this is quite straightforward. The proposal represents a distinct change relative to the current situation. As a result, the counter factual is that there is no change, in other words, that Coillte continues to operate as it has been, managing and selling timber growing on forests it owns and doing so while preserving open access and supplying the timber processing sector with guaranteed amounts of timber each year. The assessment is undertaken from the point of view of the economy as a whole and is not a commentary on the operations of Coillte.

The appraisal assumes that the policy proposal is to forward sell harvesting rights to Coillte timber in 2013 in respect of the following eighty years. Based on policy statements to date and the nature of competitive markets it is likely that only a portion of total Coillte growing timber will be sold. It is also likely that forests with poorer yield prospects, where costs are likely to be higher, will remain in public management. As a result, it is assumed that the sale will apply to timber on 50% of the land owned by Coillte but will cover the best plantations. As a result, it will represent 75% of projected Coillte production in the period. The land will continue to be owned by Coillte and the obligation to replant will remain with Coillte. Coillte will also continue to exist to manage the remaining 50% of the land area and the 25% of timber production that this represents. The harvesting rights will be sold in an open auction to be bought and managed by commercial interests. Although Coillte will continue to own the land, it will have no further responsibilities other than replanting during this period and there are no conditions imposed in relation to access to the land once the timber is bought i.e. the new forest owner will act much as existing private forest owners in Ireland. They will also be free to sell the timber as they decide, within existing Irish laws, so that they can conclude such deals with the Irish processing sector as they see fit.

The counterfactual against which the proposal is assessed is no change in the current arrangements. Under a situation of no change, Coillte has a value to the Irish state. This value arises as a result of its operations which are financed from the sale of timber on its land. If this timber is sold and the funds raised are used in part to pay off some of the national debt with the remainder invested in the economy by the public sector, then this source of finance will no longer be available. As a result, the current value to the state of these future activities will no longer arise. The issue in question therefore centres on an assessment of whether the value that would be

realised by a sale today of the rights to harvest timber in the future would be sufficient to compensate the state for this fall in the value of Coillte.

4.2 The Value of Coillte with No Change

Coillte's value to the State if there is no change is the discounted flow of profits that will be generated over eighty years, i.e. the period for which the harvesting rights to the timber is to be sold. While Coillte's ability to generate profits is known – it has been €21.125 million per year on average over the past five years – it is necessary to assume that this is typical of what would be achieved over eighty years. It is inevitable that this is somewhat speculative.

Since the profits will arise only over a number of years it is necessary to discount all future flows to a base year; 2013 is used as the base year throughout this assessment. Discount rates of between 3% and 5% have generally been used in relation to State forestry valuation in Ireland[20]. Also, official guidelines to be applied when assessing public projects recommend that all future revenues be discounted according to the official discount rate as stipulated by the National Finance Development Agency (NFDA). While the discount rate has been as low as 4% in the past[21], the long term rate has generally been in the region of 5%. The most recent guidance indicates that a nominal discount rate of 6.6% should be applied to capital investment projects[22]. This is to be applied to flows including inflation with the recommended rate of inflation equal to 2% for services with a labour component below 50%, while 3% is to be used for services with a labour component higher than 50%. This would imply a real discount rate of between 3.6 and 4.6% depending on the inflation factors used. However, the current recommendation of the UK Treasury and is that a discount rate of 3.5% should be used in forestry for the first 30 years into the future but that this should be reduced to 3% for years 31 to 75 and further reduced by 0.5% every 50 years thereafter[23]. This would be in line with more general estimates of the appropriate discount rate to use when dealing with long payback periods[24]. The appropriate rate for forestry would therefore appear to be between these various recommendations and a real public discount rate of 3.5% is used in this assessment.

The result is that the present value of Coillte with no change is the future stream of profits discounted to 2013. This amounts to €565 million. Thus, the funds raised

[20] Phillips, H. (1999) 'Harvesting the Forestry Investment'. Paper presented to IFIC Conference *Investing in Growth*, Dublin
[21] Department of Finance (2007) *Memorandum to Secretaries General* (NFDA, 15th May).
[22] Department of Public Expenditure and Reform 'Project Discount & Inflation Rates' Memorandum 1st June 2012. http://per.gov.ie/project-discount-inflation-rates
[23] HM Treasury (2003) *The Green Book: Appraisal and Evaluation in Central Government*. London: HM Treasury.
[24] Spackman, M. (2002) *Observations on Discounting and the Very Long Term*. UK Treasury Paper

would need to have a present value at least equal to this sum when adjusted for the benefits of these funds to the economy and other impacts that would arise following the forward sale of the timber.

4.3 Funding Coillte Following the Proposed Sale

One of the most important issues that must be considered arises from the fact that Coillte will continue to exist in some form with a residual forest estate and a number of legacy costs that will need to be funded. In 2011, Coillte sold timber generating total gross revenues of €112.5 million. Clearly this would not be maintained following a forward sale of timber, but Coillte would still be able to generate funds from the sale of timber from its remaining estate with production equal to 25% of the current total projection[25]. Price data provided by Coillte based on open auctions indicate that the average price obtained per m^3 for standing sales to sawmills in the period 2008-12 was €43.10[26]. Coillte does not publish prices for pulpwood sales. However, COFORD data on sales by the private sector indicate that a price of €5 to €7.50 per m^3 has been obtained recently for pulpwood[27]. It is assumed that 20% of output will be pulpwood and this is priced at €7 per m^3. Using current projections for output and allowing 10% of price for costs associated with measurement and marketing, the present value of this timber in 2013 is €730 million using the real social discount rate of 3.5% per annum. Annual revenues earned by Coillte from timber sales, averaged over the full eighty years, would be €27.7 million based on current output projections.

From this revenue stream of €27.7 million Coillte will need to pay staff. The 2011 Annual report identified a total of 1,013 employees costing €59.9 million in wages and salaries including social welfare costs but excluding pension contributions. There have been some voluntary redundancies and latest figures indicate that 967 people are currently employed. Of these, 337 are engaged in the panel board mills owned by Coillte and a further 78 are engaged in Coillte enterprises other than forestry. These can be excluded from the analysis leaving 552 employees. Of these, about 459 are engaged in the Coillte Forest division. It is assumed that replanting is outsourced and that about a third, or 150, of the staff in the forest division are retained to manage the 50% of the forest estate where timber has not been sold. The remaining 93 staff in Coillte are currently employed in back office functions – corporate affairs, human resources and finance – and it is assumed that 50 of these are retained. This means

[25] The estimates in this section assume that the non-forest interests of Coillte, which account for 25% of current revenues and primarily consist of the processing and wind farm operations, operate as viable enterprises that return revenues to cover their own cost of capital, but are not in a position to generate sufficient new revenues to subsidise the residual forest operations.
[26] *Contracted Standing Sales by Average Tree by Quarter 2008-2012*. Data supplied by Coillte
[27] Casey, J. and M. Ryan (2011) *Situation and Outlook for Forestry 2011/2012*. COFORD

that 200 staff would still be employed in Coillte in operations directly concerned with managing the forest estate and the residual timber production[28].

The total wage bill in Coillte in 2011 was just under €60 million giving an average wage, including social insurance costs, of €59,173. Thus, employing these 200 people would amount to an annual cost of €11.8 million, excluding pension contributions.

The obligation to replant all land in Coillte ownership would remain with Coillte. Based on average production per ha of 450 m^3, and replanting costs of €2,500 per ha, this is estimated to cost an additional €19 million per annum on average.

It is also assumed that Coillte will continue to protect access and amenity values on the land under its control. Current Coillte expenditure on maintaining open access and providing amenity facilities totals about €8.5 million per annum. The Coillte annual report indicates that €34.5 million was invested in 2011 in 'renewing and developing the estate'. This includes 'upgrading' to 375km of forest roads. This level of investment would not be required every year, particularly beyond about 2035 as much of production then would be from areas undergoing a second cut where roads are already in place, but some regular investment would be required. To allow for this, an annual capital investment requirement of €8.5 million is included.

Taking all these factors into account gives an annual deficit that will need to be funded from the exchequer of €11.7 million per annum. This amounts to a total liability of €313 million over the 80 years when discounted to the base year.

4.4 Legacy Issues

Existing Coillte Debt

Leaving operations aside, there are a number of other important issues that need to be included in the assessment as they have an impact on the actual value that would accrue to the economy from the proposed sale. The Coillte Annual Accounts for 2011 show debt of €172 million and a finance charge in 2011 of €11.6 million. This has averaged over €10 million per annum over the past 5 years. Clearly, after the sale, Coillte would be unable to sustain this level of debt. As a result, this debt becomes a liability of the state.

[28] These assumptions are to enable this calculation and the consultants have not undertaken an efficiency audit of Coillte operations. If additional positions are lost then the impact on this part of the calculation would be balanced by the need to include additional job losses as a loss to the economy.

Pension Liability

In line with many other state-sponsored and private companies, there is a considerable net liability in the Coillte pension fund. The pension structure in Coillte is complicated by subsidiary holdings and also by the fact that employees who were engaged before Coillte was formed in 1988 have entitlements under a separate civil service scheme. It is understood that this is relevant to about 50% of staff[29]. This means that two funds exist within Coillte, excluding the subsidiary companies, and that both have been in deficit for a number of years. An agreement was reached in 2009 that in return for staff making a 6% contribution, the company would contribute €30 million over twelve years to the fund for staff without civil service entitlement, paying for this by the sale of mature plantations. To date, about €7 million has been contributed and the annual report provides details in relation to undertaking this commitment. The most recent valuation report indicates that this fund is currently in deficit by an estimated €66 million[30].

In relation to the second fund for staff that were transferred to Coillte and previously employed in the Civil Service, it is understood that there is a liability in the region of €100 million. It is further understood that an agreement exists with the Department of Finance that any shortfall in this fund would be covered from within Exchequer funds. As this commitment already exists to cover a shortfall, it is the consultants' view that this deficit should be excluded from consideration as the liability would not be affected by the proposed sale.

The situation is further complicated by what appears to be considerable legal uncertainty surrounding liability in the case of unfunded pension liabilities in Ireland currently. This has been reported to be an issue in the case of the proposed liquidation of state assets in other companies. The options would appear to be either that the liability would be transferred to the state or to employees. Clearly, the former would be costly for the exchequer, while the latter is politically unattractive. Irrespective, this liability exists and is therefore a liability of the residual Coillte that would remain should the sale proceed.

The Coillte accounts show a net pension liability in 2011 of €130 million. It is understood that this estimate is composed of the €66 million deficit on the Coillte fund and liabilities attached to the processing companies that have been acquired. As a result, it is the consultants' opinion that any discussion of the potential impact of a sale of timber on Coillte's ability to pay pensions should be based on the data in the annual report. It is also clear that, following a sale, Coillte would be unable to generate the funds to cover this liability. Therefore, this liability must be offset

[29] The consultants have not undertaken a comprehensive analysis of the Coillte pension schemes and this section of the report is based on existing information. No criticism of information contained in the Coillte Annual Report should be inferred from what is contained here.

[30] *Actuarial Valuation Report as at 31 December 2011: the Coillte Teoranta Superannuation Scheme*. Report prepared by Mercer, 7 September 2012

against the funds that would be raised by the sale, when estimating the benefits of the proposal.

It should also be noted that a covenant exists with the Coillte pension scheme to the effect that, should a sale be undertaken, there would be implications for the investment strategy undertaken in relation to the fund. It is understood that the net effect would be to induce a more conservative investment strategy that could result in lower returns than those that were used to provide the estimated deficit. As a result, the estimate taken from the *Annual Report* might need revision should the proposed sale materialise with the result that the figure of €130 million could prove to be on the low side. However, the consultants have not undertaken any analysis of this issue.

Retained Profits

As a profitable enterprise over many years, the Coillte accounts show retained earnings (Profit and loss account on the Group Balance Sheet) of €247 million. In theory, these funds could be used to discharge these legacy liabilities. However, the consultants understand that these funds have been invested over the years in the forest estate. As such, they are not liquid funds and it is probable that they could not be realised without selling the land. Since this is not part of the proposed sale, they do not represent a means to offset these liabilities.

4.5 Impact on Forest Amenity and Access

Along with CO_2 sequestration, the most important non-marketed asset in forests is generally considered to be their amenity values. Coillte owns most of the forests with the best amenity assets and has an open forest policy. In addition, it is actively developing facilities to improve the use of its forests for this purpose. It currently manages 10 forest parks, over 150 recreation sites and 3 mountain bike facilities, along with over 50% of all off-road long distance hiking routes in Ireland[31].

This is in some contrast to the approach of private plantation owners who have largely adopted a closed forest approach. The consultants are not reaching any conclusions on the justification for this approach and note that the small average size of private forests greatly limits their amenity potential in any case. It is also important to note that Coillte forests with amenity values are mostly commercial plantations i.e. they have been planted, often with the more commercial species, with a view to eventual felling to realise the timber value. Unlike in countries such as New Zealand or Australia where indigenous forests are important, there is not a clear physical separation in Ireland between forests of amenity value and forests of commercial value.

[31] www.agriculture.gov.ie/forestryreview/backgroundpapers/coilltebackgroundnote

Since these amenity assets are non-marketed, it is inevitable that there will be difficulties in assigning monetary values to them, but some research has been undertaken in this area in recent years. This research has often relied on data from other sources, particularly the UK, for at least some of the underlying estimates. For example, the 2004 *Review* placed an initial estimate of €37 million per annum on amenity values in forests but no primary research was undertaken in Ireland. A later more extensive study of the issue estimated the value at €97 million in 2005 prices from 18 million visits at €5.40 per visit and this has been widely quoted[32]. A similar amount was found for the value of trails about 50% of which are on Coillte land. Finally, the Coillte annual report notes that visits to forest sites 'are estimated to deliver over €270 million to the tourism sector nationally each year'. No basis for this estimate was provided, but it is understood that it includes expenditure on items by people accessing forests including travel and accommodation. As such, it is not a measure of the additional spending that arises as a result of forests – much of it is simply diverted – and is therefore not a measure of their amenity value that can be used in this appraisal.

The issue was also addressed in the study by Ni Dhubháin *et. al.* but with a different objective and no total estimate of value was provided. However, the study found a strong preference among the public for open access to forests and a willingness to pay for additional visitor facilities, although this was not monetised. It noted that these preferences were less strongly held by respondents from a farming background. One aspect of forest amenity where values were provided was in relation to deer hunting where an estimate of €1.82 million per annum was provided as its contribution to the economy.

Research by the ESRI looked at different ways to estimate the value per visit to Irish forests and by using an existing dataset from 1998 found that the more reliable methodology, which differed from the one used in the 2005 study referenced above, produced an estimate of IR£2.40 (€3.05) per adult per visit[33]. This would be equal to €3.89 after allowing for inflation to 2005. Applying the estimate of 18 million visitors per annum, this would give an annual value in 2005 prices of €70 million. In 2012 this would equate to €78.6 million per annum.

Activities such as deer hunting would likely be maintained even if Coillte timber was forward sold given the damage that is done to forests by deer and so it will be in the interests of timber owners to promote this. However, facilitating other forms of hunting may be less attractive to new private owners and the work on the value of

[32] 'The Economic Value of Trails and Forest Recreation in the Republic of Ireland'. Report by Fitzpatrick Associates to Coillte and the Irish Sports Council (September 2005)

[33] Mayor, K., S. Scott and R. Tol (2007) *Comparing the Travel Cost Method and the Contingent Valuation Method – An Application of Convergent Validation Theory to the Recreational Value of Irish Forests.* ESRI Working Paper No. 190

deer hunting, while finding relatively small annual values, indicates that here are real economic values involved. The consultants consider that other ecological values such as landscape, water quality and ecology will likely not be adversely affected by the sale as the basic technology of growing and harvesting timber will be unaffected and governed by existing regulations, while Coillte will continue to be responsible for replanting.

However, the sale of timber has implications for the overall estimate of the value of forest amenity given the generally negative attitude of private plantation owners, real concerns about issues such as liability, and a generally weak legislative framework in the area. The fact that it has been stated that the forests of greatest amenity value will be excluded from the sale suggests that policymakers recognise the difficulties and this will alleviate the potential problems somewhat. It was also assumed in the estimate of the Coillte deficit that it will continue to support open access and amenity on whatever areas it continues to manage. However, Irish forests are not easily distinguished between amenity and commercial forests and so some detrimental impacts are likely. To allow for this, it is assumed that the sale will cause a 10% fall in the value of amenity in Irish forests where the timber is sold. Discounted over 80 years at 3.5% per annum this has a value of €105 million.

This loss arises even if it is assumed that the amenity value of the forests under Coillte management where timber has not been sold is maintained through the required investment. It is estimated that the open access policy requires an annual investment of €8.5 million, excluding insurance, and the resources may not be available in Coillte to continue to undertake this investment. However, the greatest loss may be that this aspect of forest value really has only begun to be developed in the past decade or so. Forests make an important contribution to tourism and this segment of the Irish tourism product has been growing in importance[34]. Without ongoing investment the potential is unlikely to be realised. Thus, while losing a portion of the existing value is a real possibility, it may well be that the likely failure to realise this future potential would be the greater loss.

4.6 Job Losses

The analysis above of Coillte following implementation of the proposal identified that there would be 309 job losses from staff in the Forest Division and 43 jobs lost from support staff. While the consultants are aware that there may be net job losses in forestry operations if the high certification standards employed by Coillte are not continued by the purchasers of the timber, it cannot be assumed that this will be the

[34]See Fáilte Ireland submission to the Review of Forestry Policy (March 2010) for a brief summary at www.agriculture.gov.ie/media/migration/forestry/forestryreview/submissionsreceived/Sub%2051%20Failte%20Ireland.pdf

case. As a result, it is assumed that the jobs in the Forest Division are just diverted to the private operators[35]. While redundancy payments would likely be made, the consultants view this as a payment for work already done and so no new liability arises.

The situation is different in relation to the job losses among support staff given that the purchasers of the timber will likely be foreign. As a result, the 43 other job losses from Coillte represent jobs that would move abroad and are therefore a net loss to the economy. In addition, using an employment multiplier of 1.4, total job loss would be 60. The value of this loss to the economy is the difference between the market wage that would be paid per job and the opportunity cost of this use of resources. This is also known as the shadow wage[36].

There is little in the way of widespread agreement in relation to the level of the shadow wage relative to the wage rate. When the economy was booming they could be assumed to be equal, but with high unemployment as at present, a good case can be made that it is substantially below the wage rate. The calculation assumes that the shadow wage is currently only 25% of the wage rate but that as the Irish economy recovers this will rise. To accommodate this we assume that it rises to 50% after 5 years, to 75% after 10 years and to 100% thereafter. In other words, by 2028 the economy will have fully recovered from the crash of 2008 in terms of its ability to generate employment.

Job losses in Coillte are valued using the average salary in Coillte of €59,173 while indirect losses are valued at the average wage. According to the CSO, average weekly earnings in the third quarter of 2012 were just under €695 per week[37]. This would equate to €36,240 per annum. On this basis, the cost to the economy of these job losses is €19 million.

[35] If this is not the case then there would be efficiency gains that would need to be included in the calculation. These gains would offset the economic cost of the job losses.

[36] The concept of a shadow wage is used to recognise that the value of labour resources in an economy is not necessarily represented by the value of wages that are paid, if there is high unemployment. If there is full employment the issue does not arise since, if a new job is created, the wages paid must be offset by the loss of wages as a result of the need for the person who takes that job to leave their previous employment. Therefore, the additional value to the economy is zero – unless there is some additional value added – and the shadow wage can be assumed to be equal to the wage rate. This is why the shadow wage can be considered to be the opportunity cost of employment. However, if there is a possibility that the person who gets the new job was previously unemployed then the cost to the economy of supplying that person, i.e. the shadow wage, must be less than the wages they will earn. The same ideas apply when a job is lost in an economy with high unemployment. While a person who loses a job is now potentially available for employment, the probability of them finding a job is less than 100%. This means that their contribution to the economy has fallen and so there is a cost to the economy as a result of the job loss. Therefore, the cost to the economy of the job loss can be thought of as the difference between the wage rate and the shadow wage.

[37] CSO (2012) *Earnings and Labour Costs, Q3 2012*.

The Timber Processing Sector

The potential impact of the sale on the Irish timber processing sector is potentially important but is particularly difficult to gauge. The forward sale of Coillte timber involves more than simply the liquidation of a commercial asset that is currently in state ownership. If undertaken in the manner proposed then there is the potential for an important detrimental impact on the Irish timber processing sector. For the sawmill sector, supply from Coillte plantations is almost the only domestic source of timber, a situation that will continue for a number of years. In the case of panel board mills, Coillte owns a substantial proportion of the total capacity, a situation that has evolved as a result of commercial difficulties in the sector over the past decade.

Difficulties could arise for two reasons. First, a foreign buyer might export the timber without processing. This would not only reduce the supply of raw material for the processing sector but would also seriously set back the potential and the ability of the Irish forestry sector to achieve the critical mass of output that was identified in the 1996 *Strategy*, which underpins policy to date, as a key objective for the sector. Given that private suppliers will average only about 25% of total projected supply up to 2020, there is the real prospect that the supply of timber onto the Irish market could fall to 50% of its current level, or less, if the timber that has been sold is directly exported when harvested. Second, a new private owner would be unlikely to commit to placing a known and specified amount of timber on the market each year. Coillte has done this for a number of years, and has undertaken to continue doing so, in order to reduce the risks associated with investment in the sector. There is no legal basis for this commitment, but it has been a factor in inducing investment in the saw mill sector in particular. The private sector is under no such obligation and the evidence of recent years is that private plantation owners will act in a manner to maximise short term gains by increasing supply as prices rise and reducing supply if they fall[38]. However, such limited evidence as is available suggests that a similar commitment will be unlikely to be forthcoming from private plantation owners. If this surety is lost, then there is a clear risk to further investment.

To get an indication of the potential economic impact, assume that the sale of timber leads to a 20% decline in operations and employment in the Irish timber processing sector as a result of the increased risk with supply. Research discussed above provides estimates that the forestry and timber processing sectors employ close to 12,000 people directly with 3,907 employed in the forest products sector. Of this, the

[38] While there is clearly an economic benefit to the sector from having this certainty of supply, it is not necessarily a zero sum i.e. it is not a case that returns to Coillte are necessarily reduced by having this regular supply. For a start there is limited flexibility in terms of the maturity of timber and there is no guarantee that if prices fall in a particular year that they will not fall further the following year. In a market where prices are driven by unpredictable changes in demand, the best strategy for a supplier may be to place a regular supply onto the market thereby earning an average return. However, it is likely that smaller suppliers would be tempted to try to increase returns by altering annual supply.

panel board and saw mill sectors employ 805 and 996 people respectively[39]. The estimated employment multipliers in these industries are 1.62 and 1.72 respectively. Applying these estimates indicates total job losses in the economy as a result of a 20% decline in this sector of 603 permanent FTE jobs. Valuing these using data on wages in these sectors from Ni Dhubháin *et. al.* and indirect job losses according to CSO data for the average wage, and applying the same assumptions for the shadow wage as above, indicates a loss to the economy of €163 million[40].

The problem with including this as a cost item in this assessment is that the consultants have no basis on which to project what a foreign private buyer might do with the privatised timber once it is harvested. Evidence from countries such as Chile suggests that there is a real possibility that it could be exported but with an Irish market operating at good prices it is also valid to argue that this market would be supplied. Consequently, while noting that the potential economic cost of job losses in the timber processing sector could outweigh any likely losses in Coillte, the calculation is based on assumptions that would be very speculative. As a result, no such costs are included in the assessment below to reflect these possible losses.

There are two further issues to be considered. The first is that the loss of employment within Coillte involves a loss of intangible assets in the form of concentrated knowledge and experience within employees. As most leading firms acknowledge, knowledge is their greatest asset, and much of this resides within human resources. There is no allowance in the calculation to represent this loss as the value of employees is assumed to be fully represented by current wages.

The second issue is that the calculation assumes that the processing sector can successfully make a step change from its current size. This is far from clear since economies of scale are very important particularly in the panel board sector. Similarly, uncertainty regarding the supply of timber could also have a much more detrimental impact on the saw mill sector than is suggested. Finally, it is worth noting that while output projections for Ireland's forest estate indicate that the private sector would be in a position after 2030 to supply the requirements of these industries, such is not the case in the interim period.

[39] Ni Dhubháin, Á., C. Bullock, R. Moloney and V. Upton (2011) *An Economic Evaluation of the Market and Non-Market Functions of Forestry*. COFORD. Tables12 & 13. It is worth noting that employment in saw mills has fallen considerably in recent years from 1,607 in 2003 (CORORD estimate). The 'Other Wood Products' part of the sector employs a further 2,106 people but it is not clear that there would be a direct impact on this employment.

[40] When valuing this cost, the shadow wage, i.e. the opportunity cost of the labour, is the value of the labour that has now come onto the market from the point of view of the economy. Therefore, the cost of the jobs lost is their current value – which is the value of wages currently being earned while employed – less the value that is created by now having that labour available to be employed elsewhere in the economy.

4.7 Summary

This section shows that the proposed forward sale of Coillte's timber would have a number of important impacts that need to be taken into account. Table 4.1 summarises the values that have been estimated. These show the impact of the sale on the economy in terms of the value that would need to be obtained to make the proposal viable to be just over €1.3 billion. As detailed above, some of these estimates, such as the loss of the flow of funds from Coillte profits, and the debt and pension liabilities are based on data from the Coillte accounts. The estimates for the Coillte deficit on the residual operations and the economic costs of job losses in Coillte as activities are moved abroad are somewhat more speculative and based on projections of residual activities following the sale. However, the assumptions underlying these estimates appear reasonable.

Table 4.1: Economic Costs of the Sale (€ million in discounted present values)

Loss of Funds from Coillte Profit Flow	565
Coillte Deficit Funding Requirement	313
Economic Cost of Coillte Job Losses	19
Coillte Debt Liability	172
Pension Liability	130
Loss of Amenity Value	105
Total	**1,304**

For the loss of amenity value, given that the asset value is real but is not based on market prices, the calculation is necessarily open to argument but the consultants have used estimates based on published research. In addition, the assumption that there would be a 10% loss in this respect appears minimal given that difficulty in differentiating between Irish commercial and amenity forests and the stark difference in positions that have been adopted between the open access policy of Coillte and a much more restrictive approach by private plantations owners to date. Furthermore, the consultants note the lack of a legislative base that would provide surety in relation to the prospects that private Irish forests, even if located on Coillte land, would be open to private visitors.

5. Estimate of the Benefits of Forward Selling Harvesting Rights

5.1 Estimating the Value of Timber

To assess if the proposal would provide value to the Irish economy it is necessary to see if the costs that have been identified would be likely to be recouped by the sale of timber from the harvesting rights. Production forecasts as previously discussed were used to identify projected output volumes for Coillte's standing forest. The calculation is somewhat simplified since the policy proposal excludes the land and so only timber values need be included. It is also assumed that the existing standing timber is sold along with management control of the forest for 80 years but that the requirement to reforest remains with the landowner. At the end of the period all control and standing timber reverts to public ownership[41].

It is not intended to provide a full valuation of all Coillte's timber assets but to identify estimates for the present value of the 75% of timber output, from forests currently under the management of Coillte, that would be sold under the proposed policy change. At the outset it should be understood that any values in this section of the report are not an estimate of the price that might be obtained in a sale of all or part of Coillte, but are used for a comparison with the costs that have been identified. Neither are they an estimate of the present value of Coillte's timber assets in public ownership since the valuation is from the point of view of their value on the open market rather than the value of these assets to the state. This distinction is important given the long time period – 80 years – over which this value will be realised since it means that a private discount rate must be used[42].

The first piece of data that is required is the volume of timber. The fairly predictable maturity profile of timber means that the best approach if not to base the estimate on a snapshot of the existing standing timber but rather on the discounted value of projected future timber output. All estimates were discounted to the base year of 2013. Data from two sources were used: Coillte's roundwood forecast up to 2025[43] and projections out to 2092, i.e. giving a total of 80 years from 2013. The main assumptions in these projections are that timber will mainly be produced to yield class 18, in other words, conifer production will be the main source of timber in the forests that are sold, but the volumes were adjusted to allow for broadleaf plantations coming

[41] It is not known what is intended in relation to reforestation. However, if the condition to reforest is placed on the buyer then this will result in the price paid being reduced by the discounted cost of reforestation. Therefore, this assumption merely simplifies the calculation without really changing the outcome. Furthermore, the assumption of standing timber reverting to public ownership at the end of the period may not be realistic in practice but the length of time involved means that the terminal assumptions are relatively unimportant given the need to discount over a period of 80 years.

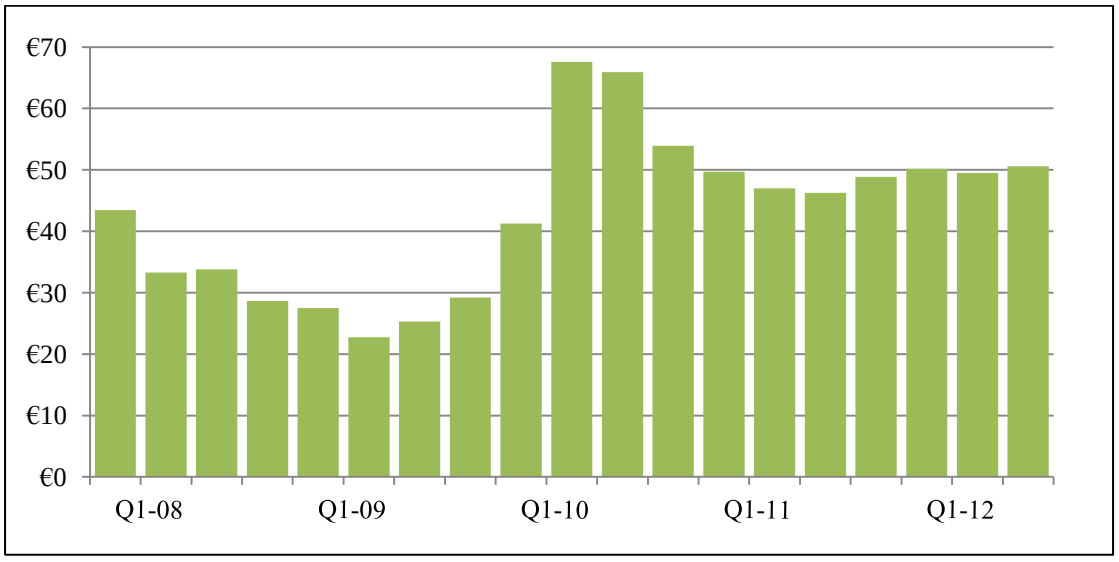
[42] The implication is that the discount rate will be higher. The appendix discusses why this is the case.

[43] Coillte (2011) *Roundwood Supply Forecast 2011-2015* provides forecasts for annual supply up to 2025

to maturity towards the latter part of the period with yield class 8 being used. Plantations are grown on a 40 year rotation for conifers and 60 to 120 years for broadleafs. It was assumed that output will average 450m^3 per hectare including thinnings, with thinning done on 80% of plantations. The first thinning is in year 18 for conifers, and plantations have 90% stocking and 9% depletion. It was also assumed that 80% of timber produced will be saw timber with the remainder pulpwood. The projection indicates total annual Coillte production in the region of 3.3 million m^3 up to 2030, rising to about 4 million up to 2040 before settling back to about 3.5 million m^3 per annum for the remainder of the period.

The calculation also requires an estimate of timber prices and this is always problematic in valuing forestry given the long time period. The calculation uses real values throughout i.e. no inflation is included in either the prices or the discount factor[44]. The conventional assumption is that prices in the future will be as in the recent past. Price data provided by Coillte based on open auctions indicate, that the average price obtained in the period 2008-12 was €43.10 per m^3 for sales to sawmills[45]. However, as shown in Figure 5.1, prices fluctuated sharply in recent years and sales of standing timber have averaged just under €50 per m^3 during 2012.

Figure 5.1: Quarterly Standing Prices of Coillte Timber (€ per m^3, average tree)



It is unknown if this price level can be maintained long term and these price data relate to sales to the sawmill sector only, which accounts for about 65% of Coillte's sales, and exclude pulpwood. Furthermore, as the 2004 *Review* pointed out, the projected growth of supplies of timber from private plantations in the next couple of decades will mean that the supply will exceed the processing capacity of the Irish timber sector although the reverse will be the case for the next 15 years or so,

[44] This does not mean that there is an assumption that this price will not change but that it is assumed that timber prices will change in line with general inflation thus holding the real price constant.
[45] *Contracted Standing Sales by Average Tree by Quarter 2008-2012*. Data supplied by Coillte

particularly if demand from biomass increases in line with policy targets. This could depress prices particularly if it was eventually necessary to export excess supplies of raw wood. Furthermore, the limited coverage of the Coillte price data may mean that the estimate is a bit high for timber in general. However, prices appear to be holding at the higher level.

Coillte does not provide prices for pulpwood sales. However, COFORD data on sales by the private sector indicate that a price of €5 to €7.50 per m^3 has been obtained for pulpwood[46]. A price of €7 per m^3 is used to provide an estimate the value of pulpwood produced by Coillte forests.

It is very likely that the purchasers will be an international operator. Timber prices on the Irish market, which determines those obtained by Coillte on which this estimate is based, are towards the higher end of the market when compared to other European countries and are well above those that exist in the UK[47]. However, as a result of restrictions on timber exports from the UK there is not a single timber market in operation and the discrepancy in prices can persist.

The third element of the calculation is an estimate of costs associated with forestry. Existing Coillte operations indicate that replanting costs on average €2,500 per ha. This also covers costs that arise in the first 4 years of the plantation. It was assumed that replanting takes place within two years after harvesting[48]. Annual costs associated with the plantation once bought, including maintenance and insurance, were estimated at €20 per ha. No harvesting costs were included as the prices used throughout are for standing timber. However a cost for measurement and marketing was included at 10% of the sale price.

The final element is the appropriate discount rate to use. The private sector will apply very different discount rates to forestry than the social discount rate which would be used to place a value on the timber if retained in Coillte's ownership. Discount rates as high as 10 to 12% have been used in various studies internationally[49]. However, the consultants consider that given that standing timber is a relatively low risk investment, the appropriate real discount rate is lower and an 8% rate is used in the valuation.

[46] Casey, J. and M. Ryan (2011) *Situation and Outlook for Forestry 2011/2012*. COFORD

[47] The extent of the price difference compared with the UK is considerable. The average price for coniferous standing sales in the UK in the year to March 2012 was £14.10 (€17.60) per m^3 (Forestry Commission *Timber Price Indices to March 2012*). A full analysis of the dynamics of this market is beyond the scope of this study but the UK prices are out of line with European prices in general and are likely subsidised. Furthermore, concerns regarding the threat of spreading the Great Spruce Bark beetle mean that timber imports to Ireland from most parts of the UK are not allowed unless the timber is treated an advance. This makes the timber uneconomic.

[48] Given that there is a fairly constant rate of maturity this assumption has no material impact on the calculation

[49] See Peter Bacon & Associates (2004) *A Review and Appraisal of Ireland's Forestry Development Strategy*, Table A5.1 for examples.

5.2 Timber Prices and Sale Value

The calculation in the previous sector identified the need to raise at least €1.3 billion to make the sale viable given the liabilities that would arise. Applying the estimates above to projected output would mean that a price of €78 per m^3 for sawlogs would provide this value, if the €7 per m^3 for pulpwood is maintained. At this price, the further value of sales of this timber, less the cost items included as noted above, would have a present value in 2013 of just over €1.3 billion when discounted at the private discount rate of 8%. This price falls to €76 per m^3 for sawlogs if the price of pulpwood is raised to €15 meaning that the estimate is not particularly sensitive to this price.

It is immediately clear that the price is well in excess of the prevailing one and exceeds the peak prices of recent years as seen in the summer of 2010, by about 15%. Given this, and taking into account the increase in supply from the private sector that will begin to impact meaningfully on the market in the next decade, it cannot be expected that the sale would realise this price.

The model was re-estimated using €50 per m^3, representing the price that has been obtained during 2012, and €43.10 per m^3, the average price for the period 2008-12. It could be argued that either of these would provide a price level for the private operators to use to value the timber in a forward sale. Pulpwood continues to be priced at €7 per m^3. At €50 the discounted value is €832 million, falling to €716 million when valued at €43.10 per m^3.

Finally, the model was estimated assuming that Irish prices remain at €50 for the remainder of this decade – as Coillte timber will continue to be the only real supply of sawlogs in this period – and then falls to €40 up to 2030 as supplies from private plantations come on the market. Processing capacity remains adequate in this period but there is excess supply afterwards so that the price then falls to €35 beyond this date. In all cases these prices exclude the impact of inflation. This gives a discounted valuation of €724 million[50].

These estimates all assume that the replanting obligation remains with Coillte. However, it is possible to envisage that it could be transferred to the purchaser. Replanting the land on which the timber has been sold i.e. 50% of Coillte's forest area, would cost in the region of €9.5 million per annum. If this is discounted over the full period at 8% in line with the private sector real discount rate adopted here then this has a present value of €115 million. The value realised would be reduced by this amount if the obligation to replant were placed on the purchaser.

[50] These estimates are all sensitive to the discount rate that is assumed. For example, at 10%, a price of €50 per m^3 gives a value of €662 and a price of €98 per m^3 is required to give a value of €1.3 billon.

5.3 The Economic Value of these Funds

The final issue is to place a value on the funds becoming available to the State as distinct from the price that a purchaser might be willing to pay for the harvesting rights. These two values are not necessarily the same since the state may be able to use the funds to provide a higher return than the value of the funds might suggest. For example, the availability of funds to pay down the national debt would have a positive impact on perceptions of Irish solvency – and thus prospects for Ireland returning to debt markets at sustainable interest rates – or could be invested in the Irish economy to realise an important objective.

Potential purchasers are likely to base their bids on recent timber prices, which are €43.10 if averaged over 5 years or €50 if 2012 is used. If we take the mid-point of this range then this provides a central estimate that the sale will realise €774 million.

Initially, the EU/ECB/IMF bailout agreement indicated that such finds were to be used to pay off debt. However, this position has changed and following the 6th Troika review in April it was reported that the 50% of the funds that might be generated from sales of public assets could be used for investment rather than debt repayment[51]. However, there does not appear to be final agreement on this and there will be controls on how this money is spent with the creation of jobs being emphasised.

The value of the first 50% would be the interest payments saved by having paid off €387 million of existing debt. Placing an economic value on this is straightforward since if we assume an average interest rate of 5% for Irish debt and discount the stream of payments avoided at the nominal social discount rate of 5%, then the present value in 2013 of these funds is €387 million. However, the consultants recognise that there could be additional impacts as this repayment would have a positive impact on perceptions of the sustainability of Ireland debt position. The most recent estimate of Ireland's general Government consolidated gross debt – the measure used in the Maastricht returns – shows a planned debt of €192 billion for 2012[52] and an interest cost of €6.2 billion. The funds raised would facilitate repayment of 0.2% of the total debt under this measure or provide 6.2% of the interest cost in 2012, about 3 weeks of interest.

Clearly, from an accounting point of view, the impact is marginal almost to the point of being negligible. However, what this does not include is the possible boost to international confidence that could be realised from undertaking such a payment in line with the agreement. The consultants accept that this is certainly a potential positive that exceeds the accounting value of these funds, but any attempt to place a

[51] Irish Times, April 26th 2012
[52] *Reporting of Government Deficits and Debt Levels*, Table 1. Department of Finance, 12/10/2012

value on this would be highly speculative. As a result, the value of funds used to repay debt is taken to be their market value, in this case €387 million.

The remaining €387 million could be invested in the economy. Placing an actual value on this requires an estimate of the likely returns to public expenditure, a point on which there is no generally accepted conclusion. Various studies conclude that it depends on the economic situation in the country and the way in which the money is used, with higher returns possible in periods of low growth and high unemployment. An indication of what return it might be possible to expect can be obtained from the operation of sovereign bond markets during the recent debt crisis when it was generally considered that if the yield on the sovereign bonds of any country exceeded 6.5 to 7% then the economy in question was entering an unsustainable position. The thinking was that at this yield, the cost of money would exceed the likely return that would be earned. Of course, this would depend on the way in which the money was spent but this benchmark appears to be accepted as indicating the long term return. If we assume therefore that the remaining 50% of the funds that are generated by the sale are spent and generate a return of 6.5% per annum, then the discounted present value in 2013 of this investment, using the nominal discount rate of 5%, is €503 million.

On this basis, the total benefit of the €774 million would be €890 million. In other words, the social value of the funds generated by the sale would be 1.15 times their market value. However, this depends on realising a social return of 6.5% and it is not simple to achieve such an outcome. In the case of the funds in question, policy statements in relation to the Troika agreement indicate that the funds would be allocated to projects with a high level of job creation potential and so it is necessary to examine the extent of economic benefits that might be expected from job creation as a result of this expenditure. A number of estimates have appeared in recent years that aim to estimate the potential job creation impacts of a fiscal stimulus, i.e. the investment of public funds, in Ireland in the current economic climate. These generally concentrate on the jobs that could be created, mostly in construction and in associated sectors through multiplier effects, through the investment of funds in various major infrastructure projects.

A submission prepared by ICTU represents one of the best referenced estimates of potential job creation[53]. This study concludes that the completion of a number of public sector investment projects that are currently planned involving the investment of €2,070 million would create 15,905 jobs for 1 year when direct and indirect impacts are included. This suggests a ratio of 7.68 jobs for every €1 million and is broadly in line with estimates that were produced by the construction industry for civil engineering works[54]. The job creation potential for investment in social

[53] ICTU (2012) *Delivering Growth & Jobs: Funding a major new investment programme for Ireland*.
[54] Construction Industry Council (2011) *Jobs and Infrastructure – A Plan for National Recovery*.

infrastructure such as hospitals and schools may be slightly higher. To allow for this the calculation uses an estimate that each €1 million invested would create total employment – including indirect employment with an employment multiplier of 1.4 – of 8 full-time jobs for one year. This means that the €350 million that would be available would create 3,096 jobs for a year. If this investment is undertaken fully in 2014 and 2015, with wages in construction employment at €38,184 per annum on average and if it is assumed that the shadow wage in construction is just 15% of the wage rate, then this would provide an economic value of just €95 million. Obviously this is far below the return that is required so it is necessary for this stimulus to lead to permanently higher output and employment.

These longer term effects would depend on the extent to which this initial stimulus would boost the productive capacity of the Irish economy. However, these estimates already include multiplier effects i.e. the full impact of the initial demand is fully included. In projecting the impact of public capital investment on employment and output, official Government statements note that while '*there will be employment benefits in the delivery of infrastructure*', it is concluded that in as far as new infrastructure would improve the ability of the economy to grow, '*there is already largely adequate infrastructural capacity in the economy*'[55]. In other words, while the investment would give a short term boost during construction, this would not lead to a sustainable boost since lack of infrastructure is not a constraint on growth.

While it might be argued that this view would be put forward by a Government wishing to undermine calls for greater public investment, this view is supported by the conclusions of research published by the ESRI[56]. This was expressed as follows:

> *There is a view, incorporated in an agreement between the Government and the Troika, that some part of the sale of State assets will provide funds that could be used to finance a local stimulus package. ... Selling state assets to provide a limited, in extent and time, stimulus is not obviously an efficient use of funds* (page 31-32).

In other words, while not saying that there would be no longer term positive impacts beyond the construction phase, the ESRI concludes that the better use of any funds that might be raised from selling State assets would be the repayment of debt as this provides a higher return. This means it is not clear how the required return would be earned and that the return on paying off debt i.e. the interest saved, means that this is the most optimal use of funds.

[55] Department of Public Expenditure and Reform (2011) *Infrastructure and Capital Investment 2012-16* (pages 7 & 8)

[56] ESRI (2012) *Quarterly Economic Commentary*, Summer. See also 'ESRI says State shouldn't spend privatisation cash on job schemes', *Irish Independent*, June 19th, 2012, where it is reiterated that the conclusion of the ESRI is that 'any money raised from privatisations should be spent on debt reduction'.

This discussion suggests that, at best, the investment of these funds would give a short term boost through construction jobs and possibly some longer term marginal addition to productive capacity and growth. However, given the depth of the recession, the availability of spare resources and the need for a confidence boost to stimulate growth, it is the consultants' opinion that an initial boost could have a greater impact through boosting confidence. It is difficult to place a monetary value on an argument based on this concept. However, assume that 6 long term jobs are created in the economy, in addition to the construction jobs, for each €1 million of public funds that are invested. Then applying a shadow wage of 25% of the wage rate to recognise the opportunity cost to the economy of these people being employed, rising to 50% after 5 years, to 75% after 10 years and to 100% thereafter, then this investment would provide a benefit of €488 million, a return close to 6.5%.

The consultants do not have a basis on which to conclude that public capital investment will create 6 long term jobs per €1 million and this calculation is included to indicate the level of job creation that would be required to achieve a return of 6.5% on social investment. However, if it is assumed that this is possible so that public funds are indeed worth 1.15 times their market value, this would mean that rather than requiring a price of €78 per m^3 in order to raise funds with a value of €1.3 billion, the timber would need to be sold at €68 per m^3 to create this value in the economy. This price remains well above recent prices and above the quarterly average peak price achieved in 2010.

6. Assessment of Risks and Strategic Options

6.1 Risks Associated with the Proposal

The analysis in the previous sections discussed the assessment of the proposed policy in terms of costs and benefits and identified monetary values on the basis of the available data and fairly conservative assumptions. However, the proposed policy represents a sharp change in forestry policy that will have implications far into the future and for which there is little in the form of precedent. Obviously there are risks associated with such a change compared with the no-change counterfactual. However, the lack of definite knowledge regarding the possible outcomes from a sale means that standard risk analysis fails to fully capture the uncertainties that are associated with the ultimate impact of this proposal. This issue is discussed in detailed below.

Sensitivity Analysis

The standard way of including risks in an appraisal of costs and benefits is to undertaken a sensitivity analysis in relation to any assumptions from which results have been derived. This recognises that, even when reasonable assumptions have been adopted as is the case in this appraisal, alternatives to these assumptions are possible. This is particular important in relation to the potential benefits of a sale since the price at which the timber can be sold has a big impact of the value that can be realised. The effects of alternative assumptions on prices are discussed in the text in Sections 4 and 5. In summary, with a steady price for timber, the value that would be obtained in a sale will move proportionately in line with prices i.e. a 10% change in prices will result in approximately a 10% change in the estimated value. As discussed in the text, the value that will be obtained is also sensitive to the discount rate. The central assumption is a private discount rate of 8%. At 9% the value obtained would fall by 11% but it would rise by 14% if the discount rate was lowered by 1 percentage point to 7%.

The calculation is less sensitive to other variables. For example, if it is redone but with a revised period for the sale of 40 years instead of 80 years, i.e. to 1 cycle of a conifer plantation, because of the impact of discounting, the estimated value that would be obtained falls by less than 5% holding all other variables constant. The calculation was redone in relation to the costs of managing the growing timber using a high cost scenario of €30 per ha per annum and a low cost scenario of €10 per ha. The impact is again fairly minor with the valuation falling and rising by less than 2% in each case.

This exercise shows that the valuation obtained is most sensitive to assumptions in relation to price and the discount rate. However, in all the cases that are included in the assessment, the impact of alternative assumptions on the estimated value that would arise from a sale is not sufficient to change the result of the central analysis that the price for timber that would be required to cover the cost of the impact of the proposed sale exceeds the prices that have been obtained for Coillte timber, or that could realistically be expected to be obtained.

Risk Factors Associated with Projecting Timber Prices

It is clearly necessary to project timber prices over an extended period. However, it is not possible to make projections over an extended period with any degree of certainty – the standard approach is to use recent prices and assume these rise in line with general inflation and this is used in this appraisal – but the fact is we cannot even know for certain in advance what price might result from an open bidding process. Obviously there are risks here. However, this is not an unusual situation and the State can easily reserve its obligation to sell unless it receives what is considered to be an adequate price. Furthermore, not knowing what price might be received is not an argument against a sale since a decision to retain the timber in ownership without knowing what it is worth carries exactly the same risk. Therefore, the proposed forward sale of timber rather than waiting until maturity does not introduce additional risk in this regard.

A slightly different formulation of this lack of knowledge about future prices is the argument that the price of timber could rise ahead of inflation over coming decades as it is a sustainable material with growing demand. However, not knowing how prices will evolve in the future is also not an argument against a sale. If there are reasons to think that prices might rise then potential purchasers will factor this into their considerations when making decisions. To argue that the state should not sell because prices will rise is to argue that the state has some greater knowledge about the likely evolution of prices. There is no basis for this. Furthermore, in terms of the assessment being undertaken here, if such reasons exist and increase the value of the timber being sold then this would have occurred in any case leading to a higher profit stream for Coillte. In other words, the additional value would appear on both the cost and the benefit side in the assessment without affect the conclusion.

However, there are important issues in the general area of risk that need to be taken into consideration and are primarily attached not to the appropriate price to use to value the timber but to the possible wider impacts of the proposed change in policy. The fact is that the decision on the future of Coillte's timber assets must be made with incomplete information regarding the impact of the decision. This means that the greatest risks with this proposal lie on the side of the potential costs and this is the case irrespective of how much information might be available on the value of the

assets. This situation is particularly acute in relation to this proposal given the apparent lack of consideration to date of the various impacts that a change in policy might have.

Uncertainty and Unforeseeable Outcomes

Having to make decisions when faced with incomplete information is not unusual; indeed it probably needs to be accepted that this is inevitable no matter how much analysis is undertaken. Standard risk analysis seeks to place probabilities on possible outcomes and assess the costs and benefits in this context. However, this type of analysis grew out of financial markets and there are difficulties with applying it to the decision to privatise Coillte's standing timber. The first issue is that financial portfolio managers make decisions with near perfect information built up on the basis of a multitude of similar decisions that are being made every day. This is not the case with the privatisation of state forestry. There is actually very little to go on when assessing possible outcomes in terms of previous experience and really nothing in an Irish context. Second, the transactions costs in financial trading in liquid markets are almost negligible and decisions are almost instantly reversible. Therefore, a decision maker will know that any decision can be reversed quickly if it becomes apparent that the outcome is not as desired. The situation could not be more different in the case of privatising forestry. The transactions costs are likely to be large, there is certainly difficulty in assessing the value of the asset, and it is likely to be almost prohibitively costly to reverse the decision. Finally, the financial trader has a very simple objective: to maximise the risk-adjusted monetary return. All costs and profits can be easily and accurately expressed in monetary amounts. Forestry is very different given the non-monetary values inherent in forests, the long timeframes to maturity and other market failures that permeate the sector. This means that irrespective of how useful standard risk analysis might be in some contexts, there are difficulties with adopting this approach to examining the decision to privatise forestry assets.

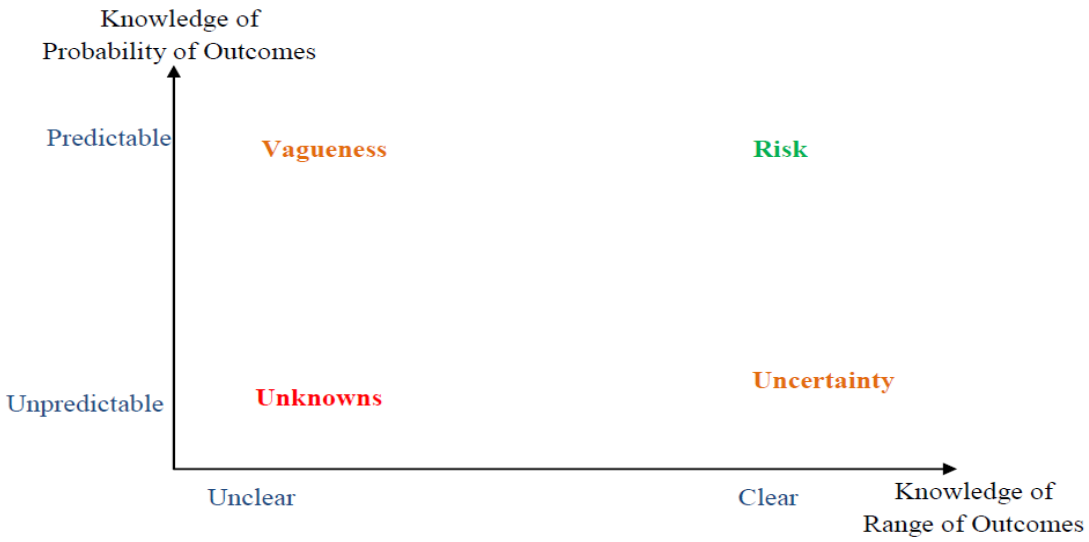
It is important to recognise the fundamental nature of the information set that is available to decision makers in relation to the proposal to forward sell Coillte's timber. It turns out that risk is only one aspect of the difficulties that arise with incomplete knowledge about outcomes. Standard risk analysis assumes that the range of possible outcomes from a decision is known in advance and that the likelihood or probability of any outcome can be assessed. Therefore, if the probability of a known outcome can be measured then we are dealing with risk. However, that is not the case here.

In summary, if the outcome of any decision can be described but its likelihood cannot be quantified then the situation is usually described as uncertainty. Dealing with uncertainty ahead of a decision is difficult, but if the decision is reversible with low transaction costs and if rules can be put in place ahead of time to deal with uncertain

outcomes i.e. contingency plans, than standard risk analysis will generally suffice. However, with major decisions it may not be possible to identify the range of possible outcomes, particularly if combined with uncertainty. If it is difficult to describe possible outcomes but the likelihood of a successful outcome can be assessed then this introduces an element of vagueness into our knowledge. Again, it is possible to deal with such situations, for example through get-to or clawback clauses attached to the sale.

The greatest problems exist when an outcome is both difficult to describe and its likelihood is difficult to assess. In such circumstances it can be said that the gaps in the knowledge set when the decision is being made are such that the outcome is unknown. This characterisation of the knowledge terrain for possible outcomes of decisions is shown in Figure 6.1[57].

Figure 6.1: Knowledge Deficiencies and Unpredictability



Cooper (2012) identifies policies with unknown outcomes as creating the conditions for Black Swan events, an approach that has gained considerable attention in recent years[58]. A Black Swan event has 3 characteristics:

- it is a rare event outside the realm of regular expectations so will not be predicted by existing information,
- it has far-reaching impacts, and
- after the event it appears to have been obvious that it would occur.

The financial crash of 2008 is generally seen as one such event. The problem is that it is almost impossible to deal with such outcomes but it has become increasingly clear

[57] This figure is based on Cooper, M. (2012) *Capturing the Value of Offshore Wind: A multi-criteria approach to shaping the UK's future electricity generation mix*. Report to Mainstream Renewable Power. The author of that report uses this schema to examine the options for the UK Government when deciding on the role of offshore wind power in meeting the UK's energy requirements.

[58] Taleb, Nassim Nicholas (2010). *The Black Swan: the impact of the highly improbable* (Second ed.). Penguin

that it is inadequate to think of decisions that are made in the face of incomplete information regarding complex outcomes simply in terms of risk as usually understood.

In an Irish context, the privatisation of *eircom* could be analysed within this conceptual arrangement. Without going into detail, it is generally accepted that there are difficulties with how this turned out. The problem is not just that the sale was priced too high; after all the vendor was entitled to sell at the going market price and buyers accepted the risks. There was also uncertainty in part arising from the difficulty of assessing the possibility of a stock market crash following the dotcom boom. However, the greatest long term problem relate to the inability to foresee the way in which the finances of the company would be managed by a succession of owners and the extent and nature of the opportunities that would arise in the consumer telecommunications sector. Therefore, these could not have been factored into any *ex ante* assessment of the proposal to sell *eircom*.

When faced with risk, the correct response is to diversify the portfolio and hedge. With uncertainty, the correct response is to wait until information improves or include options if this is not possible. With vagueness it is important to have contingency plans or conditions on the sale to avoid possible but unclear outcomes. When the outcome is unknown it is more difficult to build in such conditions. One solution that can help to ease the potential impact of unknown outcomes is to move slowly and remain flexible i.e. keep open the option to change policy if its initial impacts are seen to be unexpected or costly. Under these circumstances it is not known if the policy decision will fail but failure is one possible outcome. As a result, one objective is to ensure that the policy fails early and fails small.

There are clearly important issues here with relevance to the proposal to forward sell part of Coillte's forestry assets. There are possible impacts associated with the forward sale of timber but it may not be possible to quantify or even describe the possible effects in advance. For example, it is not known how new owners would market the timber nor the impact this might have on the Irish timber processing industry. Importantly, it is not possible to foresee the opportunities to develop value-adding industries, based on a steady supply of timber onto the market, that might arise in future decades but will not be realised if the supply is not secured. Neither is it known what might be the attitude of private owners to access or how this might impact on the non-timber value of Irish forests. Therefore, while the proposal seems to be simply a liquidation of existing assets, there are important unknowns as we don't know the full range of possible outcomes and we don't have any way to assign probabilities.

6.2 Options to Manage Uncertain Outcomes

There is obviously uncertainty regarding the likelihood of some of the outcomes considered in the assessment in the previous sections of this report. This is particularly the case in relation to the potential impact on the processing sector as it currently exists and in relation to exploiting future opportunities that are not currently foreseeable, but could arise. Despite this, it is possible to certain strategies that might assist to reduce the potential costs of these uncertainties.

Create a Knowledge Base

Where there are unknown outcomes, the best approach may be to try to create knowledge so that the set of outcomes can be described and assessed. In the context of forward selling timber this would mean structuring the sale in small lots to begin with i.e. to implement the decision on a piecemeal basis. If the policy is seen not to be working then it can be stopped. This is the fail early/fail small approach.

There is no evidence in policy statements that this is envisaged in a manner that could address the problems. As far as the policy has been set out so far, the required approach appears to be to go for a fairly quick sale. Indeed, it can be argued, with some validity, that there would be little point in selling the Coillte timber at all unless the funds can be generated quickly since the Irish economy shows signs of beginning to return to growth and will gradually move back to a more sustainable position. Furthermore, it is difficult to see how this approach could be implemented in a useful manner. A strategy of selling a few small lots over a few months to 'test the water' is inadequate as this would only provide information on prices i.e. the value that could be obtained. In any case, an offer to sell would inevitably lead to cherry picking with the very best parts of the forest estate getting good prices but providing little indication of what value might be realised overall. The fact is that many of the consequences of the sale might not become known for many years. It is in relation to these latter issues that the greatest problems exist. As a result, there is little value in proceeding in this manner as the required knowledge will not accrue within a meaningful period of time.

Place Conditions on the Sale

It is possible to envisage that the sale could have conditions attached that would require timber to be placed on the market to retain the level of certainty that is currently provided to processors and to ensure open access to forests.

However, while theoretically possible, it is difficult to see how such conditions could be implemented in practice. First, the price that would be obtained for an asset with effective conditions would almost certainly be lower than for a simple sale. Such

evidence as is available from international instances of forest privatisation indicate that restrictions reduce the benefits. Second, such conditions would place the purchasers at a competitive disadvantage relative to suppliers of timber from existing private plantations and, apart from the commercial consequences of this, it may mean that they would not be legal under competition legislation. Finally, it is difficult to see how such conditions could be enforced, particularly in relation to access, without incurring high costs and probably political opposition from private plantation owners. Ireland does not have the necessary legislative base to either guarantee public access to private forests nor to direct when commercial forests should be harvested. In as far as the legislation exists in this area it is primarily concerned with specifying conditions under which forests can be cut, i.e. it is restrictive not prescriptive. In summary, therefore, while this option appears useful at first, it is unlikely that it would be of any use in practice.

Avoid Legacy Issues

One the key issues driving the results obtained in the assessment is that a forward sale of Coillte timber would force the acknowledgement that there are important liabilities in the company that could not then be paid through a revenue stream that would be greatly reduced. Thus, when the value is crystallised in the forward sale, so too are the liabilities. This is not very surprising given that the proposal is to effectively remove the assets from Coillte while leaving the liabilities in place. One way to avoid having an ongoing liability on the state would be to sell Coillte in its entirety, including the land.

Undertaking a full valuation of Coillte is beyond the scope of this report but there are various methodologies that could be used to identify an indicative value for Coillte if sold in full as a going concern. The simplest way to identify a value is to apply a suitable price-earnings (p/e) ratio to net earnings (profit after taxes). A review of current p/e ratios for publically listed companies in the timber and forestry sectors indicates a very wide range with a company's growth prospects being a key factor leading to a higher p/e. Most US companies lie in the range of 4 to 17 times, but some are much higher while others did not report positive earnings in recent years making the calculation impractical. In the UK a p/e of 8.67 is reported for the sector but the sample is very small. Applying a p/e of 10 to Coillte's earnings would provide an indicative estimate of the value of the company on the open market.

Coillte's *Annual Report 2011* shows an operating profit of €32.4 million and profit after taxation of just under €20 million. This was just below the 5 year average profit of €21.125 million. Applying a p/e of 10 to the 2011 profit would provide a valuation of €200 million. However, turnover has been pretty flat in recent years – leaving aside the sharp drop in 2009 – and with a return on assets of just 1.3% and a return on

equity of 1.67%, this valuation of €200 million could be optimistic. Furthermore, profits are susceptible to a fall in price of timber which is a cyclical product.

This brief examination suggests that the value that could be raised in a complete sale would be well below the estimated value of the timber and below the value of the discounted stream of future profits that would accrue to the State in a no-change scenario. This makes the proposal uneconomical. There would also be no guarantee in relation to the flow of timber onto the market or public access to forests. In any case, in part because the sale of land would be politically non-palatable, the full sale of Coillte has already been ruled out.

Restructure Coillte as a Manager of National Parks

The final option is to proceed with the sale as envisaged but recognise that Coillte could no longer be considered to be a commercial state company primarily engaged in the production of timber. Instead it would be more akin to a National Parks service and could be restructured as such. Legislation would be required and an annual budget. It would also be necessary to sell the panel board mills and other commercial enterprises. However, none of these should pose insurmountable problems.

The problem with this alternative is that this option is basically what has been evaluated above, although it would at least be a recognition of the true nature of the proposed forward sale. The proposal is not simply a liquidation of an asset to provide funds but the effective liquidation of a business that leaves a large liability on the state. While the residual entity could raise some revenues through timber sales and perhaps through managing the National Parks as a result of investment in amenity facilities, it would primarily be subsidised by the state. In effect, this is what the assessment above is concluding. However, no argument has been made that this is either a required move nor a strategically beneficial proposal. Instead, the only rational for the sale is economic. The question therefore is whether the transformation of Coillte into a state subsidised manager of national parks would provide economic benefits and the unambiguous conclusion of this study is that this is not the case.

7. Findings

This report provides an assessment of the economic impact of the proposal to forward sell 75% of the future output of Coillte timber for a period of 80 years. The proposal has not been fully articulated to date and this representation of what is proposed is based on the consultants' understanding of such statements as have been made. At the start it is important to be clear that the only rationale that has been put forward is that this would raise liquid funds and there is nothing in existing Irish forestry policy nor in any strategic review of the sector that would support such a sale.

State ownership of forestry is common practice in almost all countries and there are sound reasons in terms of market failures why this is the case. Some privatisations have taken place in recent decades but there is little in the way of relevant experience to guide the Irish decision. From the available instances, the conclusions would appear to be rather similar to privatisations in other sectors. After such a policy is implemented, efficiency improves, but the real gains arise when the privatisations occurs in the context of a wider programme of privatisation. A change of ownership is not the important issue. In any case, it is clear from the examples that have been reviewed that they do not shed much light on what might be the likely outcomes of privatising timber in Ireland.

Irish forestry policy has effectively seen the part privatisation of forest resources not through changing ownership but through encouraging private plantations. This strategy is based on the accepted need to increase the supply of timber in Ireland to enable value-adding processing industries to develop. While this has been in place for almost two decades, the supply of timber from the private sector remains very small so that timber from Coillte forests dominates total supply. Private supply will increase over the next decade but Coillte will remain dominant in terms of supplies of sawn timber, particularly at larger diameters.

The forward sale of the timber would have a number of impacts for which costs can be estimated. These include the loss to the state of the stream of profits earned by Coillte, the need to fund a future deficit in Coillte as it will not be able to fund its operations, the need to recognise liabilities in the company including debt and a large pensions deficit that will not be funded from operations, the cost of job losses within Coillte, and the impact of privatisation on public access to forests. Under detailed assumptions and using available data, these costs have been estimated to have a present value in a base year of €1.3 billion.

Coillte sells timber in an open auction process that it has developed and it is open to private suppliers to participate. Prices in Ireland have tended to be towards the higher end compared with European countries but not extraordinarily so, excluding the UK. The average price to saw mills in recent years has been just over €43 per m^3 with €50

per m^3 being achieved in 2012. It is clear that no common market in timber exists between Ireland and the UK given the disparity in prices and the fact that Irish sawmills continue to rely on Ireland for timber supplies.

To generate a sale valued at €1.3 billion would require an average price of €78 per m^3. This is well above current or recent prices and there is no basis in these prices for assuming that this would be achieved. Even if it was assumed that this could be achieved then Coillte's profit under a no-change scenario would rise dramatically so that the estimate of the cost of forward selling in terms of the lost forward stream of profits would also rise.

The analysis recognises that the funds generated could be used productively to generate returns in excess of their initial value. While it would take time for this value to accrue, potential returns under optimistic assumptions suggest that the economic value of the funds could be 1.15 times the monetary value of the sale. However, even allowing for this, the required price for the timber still exceeds the price that can be expected.

The proposal is an abrupt change in Irish forestry policy to the extent that it could greatly disrupt the sector and make the objectives that have been set unattainable. There are risks associated with this that go beyond the normal risks that can be associated with projections of timber prices. These include the potential to disrupt the processing sector, a possible cost factor that was not included in the assessment of costs. The problem is that it is very difficult to specify what outcome might result and to assess the potential for this to happen. It is possible to envisage some options to minimise this potential, such as a piecemeal approach to the sale using a policy that could be soon reversed or a conditional sale, but it is unlikely that such options would have any real value in practice.

The analysis shows that the actual gains from the proposed sale would be limited, even in the short term, while there would be considerable longer term liabilities created with a lot of uncertainty regarding the full range of impacts. The overall result is that this proposal is not just a move to liquidate timber assets but would effectively liquidate Coillte as a viable entity. Given the non-commercial activities of Coillte and the residual land and forest that would need to be managed, it should be seen as a proposal to restructure Coillte as a National Parks Service that will depend on a state subsidy to carry out is obligations. However, no argument has been formulated to support such a move and, when viewed as such, the economic rationale for the sale disappears.

Appendix: Discounting in the Public and Private Sectors

The appropriate discount rate is an important decision in the assessment of costs and benefits given the long time period involved. It depends on the entity making the assessment and will differ depending on whether it is a public or a private sector decisionmaker. The factors that determine the discount rate have subjective as well as objective elements. For example, risk is not an absolute characteristic of any outcome but depends in part on characteristics of the decision maker and their perception of the situation.

Two aspects of this are of particular importance in relation to forestry. The first is that, no matter how big in terms of assets under management, the portfolio of any private asset manager will be less diversified than that of almost any public policy maker. For example, forestry assets will be only one asset class among many for the public sector assessor to a greater extent than for the private portfolio manager. As a result, the public sector is more diversified in terms of its holdings than will be the private portfolio under almost any conceivable circumstances. The result is that the effective risk that is attached to forestry will be lower in the public sector. This is particularly important for forestry assets that have a long time to maturity and the value of which will depend on variable market prices. As a result, the appropriate discount rate to use when valuing those assets from the point of view of the public owner will be lower than will be used by the private sector.

The second, associated issue relates directly to the time period to maturity. Obviously a private individual has a limited time period over which value must be assessed while the state can assume an infinite time horizon. Even a corporate portfolio manager must impose an effective maturity date as liabilities will not have an infinite time horizon. One implication is that the state will assess value over a longer period i.e. it can wait longer. The result is that the appropriate discount rate to use is once again lower[59].

The importance of these issues has been assessed in the development of Irish forestry policy and the 2004 *Review* pointed out their potential importance when assessing the cost of existing premium payments to private growers in Ireland[60]. This work assessed various options to revise the structure of such payments while keeping constant the returns that would be earned by private growers with a view to reducing

[59] There is an extensive literature on this issue. Spackman, M. (2002) '*Observations on discounting and the very long term*' published by HM Treasury provides a summary of some of the main points while a report by OXERA Consulting (2002) '*A Social Time Preference Rate of Use in Long-Term Discounting*' to UK Government Departments identifies the impact of the time period in reducing the discount rates that should be used in assessing projects.

[60] *A Review and Appraisal of Ireland's Forestry Development Strategy*. Report to Department of Agriculture, Food and Forestry by Peter Bacon & Associates in association with Deloitte Corporate Finance (September 2004)

the cost to the state of funding the payments. The work showed that reducing the premium payment period to 10 years but increasing the annual premium to maintain constant the present value of payments to farmers would provide a saving of 7.5% on the cost to the state. This outcome arises simply because of the different discount rates that are used in the private and public sectors.

This work also undertook an exercise to assess the impact of the state revising current policy to include a right to acquire i.e. buy from private growers, in year 10 all standing forest that has been planted under existing grant and premium schemes. Again a constraint was imposed that the present returns to the growers must be maintained. It was not proposed that the state would take this timber into ownership but would pre-sell the timber in private forests and compensate the growers so as to maintain the returns they could expect to receive if the forest was held to maturity and the timber then sold. The analysis showed that such a scheme would generate a return to the State of about €1,000 per hectare of forest. Again, this arises simply because of the different discount rates that would be appropriate given the individual growers' short time horizon and limited asset diversity. The work also noted that additional benefits due to the certainty of the payments would accrue to private growers.

While neither of these policy options have been implemented they do serve to illustrate two points. The first is the impact of discount rates and the lower rates appropriate to use in the public sector, particularly when dealing with investments that have a long time horizon. The second is the extent to which the current proposal contrasts with existing policy and the types of innovations to reduce state expenditure that were under discussion and that are still available to implement. In summary, the proposal to forward sell timber in public ownership is an exact reversal of the options that have been identified.