Biodiversity Conservation Fund Charge System Consultation

Landholder Biodiversity Stewardship Agreement (BSA) Interviews

O'Connor NRM

2021

Acknowledgements

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Abbreviations

BCF	Biodiversity Conservation Fund
BCT	Biodiversity Conservation Trust
BOPC	Biodiversity Offset Price Calculator
BOS	Biodiversity Offset Scheme
DICC	Developer-initiated credit creation
DPIE	Department of Planning, Industry and Environment
NSW	New South Wales
OTG	Offset Trading Group
PCT	Plant Community Type
TFD	Total Fund Deposit

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Executive summary

The New South Wales Government's Biodiversity Offset Scheme is seeking to establish a new system to determine the charge for development proponents who choose to acquit their biodiversity offset obligations by paying into the Biodiversity Conservation Fund under rules set by the *Biodiversity Conservation Act 2016*. One of the approaches being taken to developing the new charge system is the development of a bottom-up costing approach based on estimation of the costs for a landholder to establish and trade biodiversity credits. To assist with understanding of the cost basis for biodiversity credit generation, this project undertook interviews with 55 individuals and organisations with established (or in the process of establishing), Biodiversity Stewardship Agreements to generate biodiversity credits. Interviewees were recruited through email invitations sent to approximately 200 people/organisations (contacts supplied by BCT) involved in creating BSAs (including landholders independently developing BSAs, landholders developing BSAs under contract with developers, and councils, statutory bodies and utilities, brokers/traders and developers generating BSAs). Interviews were offered and scheduled over a four-week period and all people who agreed to an interview were interviewed in that period (a simple random sample). The interviews sought to understand participant motivations for establishing a BSA and to document issues and barriers to scheme entry, agreement establishment and operational credit trading.

A number of information problems were raised by participants as challenges to costing credit generation projects (and credits) under uncertainty. The main issues raised related to the challenge of costing projects given uncertainty about likely credit type and credit volume from projects, uncertainty about access to biodiversity credit buyers, uncertainty about the liquidity of the market (particularly given the highly segmented nature of the market containing a high number of offset trading groups), potential impact of offset obligation acquittal alternatives for developers (direct payment to the Biodiversity Conservation Fund) distorting market signals and prices, challenges with participating in the Open Fixed Price Offer Process, uncertainty about Biodiversity Stewardship Agreement and credit establishment timeframes, costs of generating species credits, issues with transition from BioBanking to the Biodiversity Offset Scheme, and the need for credit seller representation in policy development and scheme design consultation.

Participants identified the core costing components of Biodiversity Stewardship Agreement generation and biodiversity credit holding and trading. Costs discussed included fixed and variable costs related to land type and costs associated with risk and contingency and with profit margin. The main cost elements discussed included a suite of agreement establishment costs (e.g. desktop feasibility, site assessment, tax and legal advice, interest on borrowings, trading, taxation and passive management costs). Critical cost components for the land use change include land valuation and opportunity costs, profit, long-term management risks and holding costs. There was clear evidence that credit sellers seek to reach profitability under uncertainty by using dynamic pricing and trading approaches to meet profit expectations and manage risk.

1 Introduction

The New South Wales Government's Department of Planning, Industry and Environment oversees the design and operation of biodiversity offset trading in New South Wales (NSW) through the Biodiversity Offset Scheme (BOS) and its predecessor, the BioBanking scheme. The BOS seeks to protect net biodiversity assets by facilitating the generation and trading of biodiversity credits between landholders who supply credits and developers who require credits equivalent to the impact of the development on biodiversity (a 'debit'). A biodiversity credit is generated when a landholder commits to enhance the biodiversity values on their land in perpetuity through a Biodiversity Stewardship Agreement (BSA). Biodiversity credits are the expected improvement in biodiversity that will result from the protection and management of the site under the BSA. Developers can obtain credits to acquit their offset obligations through two options; option 1) directly from the market of credit suppliers (landholders generating credits and/or intermediaries who hold credits), or option 2) pay into the Biodiversity Conservation Fund (BCF), managed by the BCT, which will buy credits from the market to meet the offset requirements. Developers can also choose to generate their own biodiversity credits.

The Biodiversity Offset Payment Calculator (BOPC) sets the amount for payments and conservation actions under option 2) to the BCF. Like any statistical model, the BOPC's econometric model works best when there is a sufficiently large number of observations to produce estimates with a high degree of confidence. In practice, the actual volume of sales in biodiversity credits in the market has proven to be very low for many credit classes. In these cases, the BOPC can have unintended consequences. In particular, the BOPC may produce estimates that deviate materially from the actual costs that the BCT will incur. Given this challenge, the public availability of the BOPC has the potential to distort the way the offset market operates.

The BCT is seeking to establish a new system to determine the charge for development proponents who choose to pay into the BCF under rules set by the *Biodiversity Conservation Act 2016*. One of three approaches being taken to developing the new charge system is the development of a bottom-up costing approach to estimating the costs for a landholder to establish and trade credits. The review is also working towards development of an econometric model for credit pricing and taking market soundings. The BCT is undertaking a consultation program to engage BOS participants to share their expertise, analysis and data to help build and refine the new BCF charge system.

This report summarises the key findings from interviews with biodiversity credit generators. The interviews aimed to understand participant motivations for establishing a BSA and explore issues and barriers to scheme entry, agreement establishment and operational trading. The interviews sought to draw on participant experience and reflection of scheme participation issues which would have bearing on understanding of the costs of credit generation and trading.

Interviews were conducted as semi-structured conversations to allow participants to raise issues of concern for them in relation to their participation in the BOS and in relation to issues of cost consideration for credit generation. Participants were invited to speak freely and express their views and were prompted to comment on material issues such as

- Motivation for developing a BSA
- Barriers to scheme entry
- Key considerations in determining costs and revenue including profit for establishing a BSA
- Expectation for change in land value as a result of establishing a BSA
- Expected return or financial gain from entering an agreement
- Ongoing management requirements, expectations and costing
- Tax implications
- Availability and sources of market information
- Establishment costs
- Finding a buyer and participation in BCT tenders and offers

Results are discussed in two parts, 1) program design and operation issues raised, and 2) bottom-up credit price components.

2 Methods

2.1 Semi-structured interviews

The purpose of the semi-structured interviews with BOS scheme participants was to share their expertise, analysis and perspectives to help build and refine the new BCF charge system. The method aimed at developing rich conversations about key issues for interviewees in relation to the BOS scheme. This method was preferred over other survey methods as the conversational, rapport-building approach was considered more likely to explore themes important to interviewees and was most likely to achieve a good response rate from the sample population. The method prioritised listening to interviewee issues, experiences, views and concerns. As with alternate survey methods, the qualitative method used here relies on participant openness, honesty and reliability.

The consultation aimed at informing the development of a bottom-up costing approach to estimate the real costs for a landholder to establish credits under the BOS. A bottom-up costing approach would be a key consideration in establishing the charge a developer pays into the BCF if they use the fund option to acquit their offset obligation.

The interviews aimed to understand participant motivations for establishing a BSA and explore issues and barriers to scheme entry and agreement establishment and participant experience and issues. The consultation aimed to contribute to the review of arrangements for the Biodiversity Conservation Fund to improve fairness for BOS scheme participants and assist in risk management for the scheme.

A list of potential interviewees was provided by the BCT from a mailing list of all primary BSA landholder contacts (approximately 200 individuals and organisations), and emails were sent out in early September 2021. Interview requests were sent from O'Connor NRM with instructions for participants to 'opt-in' for an interview (simple random design) and to suggest a preferred time for an interview by telephone or through Zoom online. Interviews were arranged and conducted between 15th September and 15th October with most being conducted via Zoom. The initial intent was to interview 50 participants, which increased to 55 participants near the end of the interview period when some additional requests were made by people responding late in the process. After the close of interviews, some BOS participants advised the BCT that they had not been offered an interview. This issue was traced to the original contact group email made from O'Connor NRM being treated as junk mail by some recipient email management systems and not being recovered by recipients. The error was non-selective and unbiased relative to the overall population of potential interviewees, though it was understandably unexpected for those participants affected. The breakdown of interviewee types is shown in Table 1). No interviews were undertaken with people considering but not entering the scheme.

An interview guide was developed and refined during data collection and interviewees were encouraged to explore their thoughts about the BOS and their costing of credits through directing to themes in the guide, prompting, providing feedback and reflexive statements, and by referring them to information about the BOS and the process of creating and costing credits where required. The interview (as much as possible) was conducted as a natural conversation to allow interviewee thoughts to develop and move freely to topics that were priorities for them. This interview approach was not intended to yield quantitative or segmented data; however, the process was flexible to the different type of participant and the different stage participants were at with respect to creating and trading credits or implementing a BSA. Where a question was thought to be redundant for a particular interviewee, it was not asked.

The key interview questions were:

- What involvement have you had in establishing a BSA?
- What was your motivation?
- What were the three most difficult things about establishing a BSA?
- What were the main considerations in establishing a BSA?

- How have you handled
    - up-front scheme establishment costs
    - estimating pay-off
    - type of credit (OTG)
    - profit / investment advice
    - risk / legal and tax advice
    - land value and opportunity cost
    - Initial and management costs & payments over the life of the BSA
    - access to market price and buyer information
- How have you found the credit sales process?
- What do you think of the idea to change how credit prices are calculated for developers who pay the BCT to meet their offsets?
- What was the biggest learning when establishing the BSA?
- How could the process of establishing a BSA be improved?
- Is there anything else that you would like to comment on?

Interviews also asked participants about the impact of competing schemes on their costing and trading of credits, however, the question yielded little information in early interviews and was dropped to focus on other areas of interest.

The majority of interviewees agreed to recording of interviews which were converted to text transcripts (using Otter software) for textual analysis. Where an interviewee did not consent to recording the interview, the interviewer recorded detailed interview notes for textual analysis. Interviewees could be split into several categories,

- Landholders creating credits either independently, or under agreement with developers
- Developers generating credits either under agreement with landholders or on own/purchased land (including large infrastructure corps, utilities, mining, real estate)
- Councils (and similar statutory bodies) creating / managing offset sites

Interviewees included participants who had entered a BSA under the old BioBanking scheme or under the new BOS. Some participants had been managing sites for up to 10 years under established BSAs. Participants had generated a mixture of ecosystem credits and species credits.

2.2 Confidentiality and Consent

In introductory email and at the start of the interview, participants were advised that information provided will remain confidential to the program improvement project and information will be stored to ensure privacy and confidentiality. Participants were advised that it would not be possible to identify an individual from the reporting. Participants were asked to consent to the interview and to consent to allowing a recording of the interview to be taken where appropriate. Interviewees were advised that recordings would be deleted at the end of the reform project.

2.3 Limitations

The starting point for these interviews was a desire to understand key issues with defining elements of cost in creating and pricing credits under the BOS. The method aimed at developing rich conversations about key issues for interviewees in relation to the BOS scheme. This method was preferred over other survey methods as the conversational, rapport-building approach was considered more likely to explore themes important to interviewees and was most likely to achieve a good response rate from the sample population. The method prioritised listening to interviewee issues, experiences, views and concerns. Consequently, no quantitative analysis of project information was undertaken and participants were asked to provide only general information about their property locations, property sizes, credit types and quantities (created and traded), TFDs, costs (for all categories) etc. While the information provided was taken as accurate, no attempt was made to verify the information (except by drawing inference across interviews) or to improve precision with follow-up enquiries. As with alternate survey methods, the qualitative method used here relies on participant openness, honesty and reliability.

The consultation process did allow stakeholder workshops to be undertaken where interim findings were presented to stakeholders and participants to increase transparency and allow additional feedback. This provided a level of verification of findings.

2.4 Analysis and interpretation

Thematic analysis of interviews was conducted through an iterative process of identifying themes raised by individuals and then checking for evidence of emergent themes in other interview notes, transcripts and recordings. Themes were clustered under headings for reporting. The sources of themes were determined to link them to the different informant cohorts identified where that was considered informative.

3 Participant Types

Interviews were held with a wide range of participants and participant types operating at different stages of initiating and implementing a BSA. Table 1 sets out the categories of participant and their stage of involvement. The categories are used to provide some information about the interviewees to allow interpretation of the findings from interviews. Most categories have few cases and may include sub-categories not elaborated (e.g. 'developer independent' includes developers using all their credits for the development and developers using some credits and looking to sell others). The categorisation is restricted to the level of must useful sub-divisions. A more detailed survey of participants stratified by sub-type may be possible when the total number of participants is higher). The numbers in Table 1 do not reconcile to only 55 distinct interviewees as some interviewees had (or were developing) more than one BSA at different stages of development or implementation.

The majority of interviews were with landholders who were generating biodiversity credits independently or under agreement with a developer who wants/wanted the credits. A smaller proportion of interviewees were developers generating credits themselves or through agreements with landholders, and organisations and corporate / statutory bodies which hold land for a range of purposes (e.g. councils, land trusts, utilities).

The majority of interviewees were in the process of finalising a BSA (pending agreement) or had agreed the BSA but were under passive management because they had not filled the TFD to move to active management (Table 1). The high proportion of participants under non-active management is in part due to the processes required to complete a BSA. Some participants did report that they had not yet signed the BSA because they did not wish to initiate the covenant and obligations of the BSA until they had clarity about their ability to sell credits within a reasonable timeframe and at a sufficient price. Confidence to trade sufficient credits to meet minimum requirements from the landholder to initiate the BSA was reported to be affected by perceived lack of liquidity/activity in the market (uncertainty about price-setting or buyer access), uncertainty or dissatisfaction with prices, and scheme rules (e.g. TFD filling, tax impacts, passive management costs, low trading of certain credit types). Some of these issues are related to the volatility of BOPC prices for some credits and also to the public availability of the BOPC; two issues that the development of a bottom-up cost

Table 1. Participants interviewed and the stage of management implementation of the BSA including the offset scheme the BSA was generated under[1]

Participant Type[2]	Offset Scheme		Management Stage	
	BioBanking	BOS	Active	Passive[3] or Agreement Pending
Landholder Independent	10	15	4	21
Landholder contracted by developer (DICC)[4]	5[5]	5	4	6
Developer independent	5	3	2	6
Developer contracting landholder (DICC)	1	3	2	2
Council, statutory body or utility	8	6	7	9
Broker / Trader	1	1	2	0

[1]Where landholders had not specified the offset scheme they were allocated based on expected date of BSA establishment

[2]Numbers may not reconcile for all columns and rows as some participants had more than one BSA at different stages of management implementation

[3] Statutory bodies/councils and some other landholders indicate that 'passive' management means partial active management as they have obligations (e.g. maintaining access or dumped rubbish removal) or want to avoid problems accumulating during 'passive' management (e.g. rapid spread of weeds during active management that will later require much more management but TFD insufficient)

[4]Where a developer has generated credits through a DICC sites were assumed to be under active management status

[5]One landholder went through the process of generating credits with a DICC but withdrew and signed the BSA independently in the final stage. One landholder sold their property to the developer after the DICC process had begun.

model with input from participants aims to improve. The issues outlined are discussed in the later sections of this report.

The opportunity to undertake an interview was open to a wide range of BSA holders and applicants, however, it would not be surprising that participants would self-select into interviews if they were facing barriers to finalising their BSAs or moving out of passive management. If the sample of participants does not reflect the population as a whole it may be that there is a bias to people dealing with these challenges. These are key informants in the consultation and reform process and are well represented as a proportion of the total sample.

4 Program Design and Operation

Participants were asked to briefly describe their involvement with the biodiversity offsetting program and indicate the time they had been involved and their position as a participant (participant type). Conversations almost always began with a description by the interviewee of challenges they had faced in creating, finalising or operating a BSA, including trading credits generated. These discussions generated a range of issues themes that were encountered by participants of different types and with different frequency. To help understand the significance of issues, they are discussed under a suite of themes in this section of the report. Issues arising from participation in the program are reported with qualitative reference to the commonality of the issue, because a perspective raised only once may provide insight that would be lost if themes were weighted by frequency. Where an issue was thought to be very specific to the particular BSA or participant and did not provide general insight for the purposes of the report, it is not discussed in the report (e.g. landholder disputing the presence of a recorded weed species).

It should also be noted that participants did not generally distinguish between different organisations responsible for the design, administration, technical and operational elements of the BOS, likely because they do not understand the difference and the main operational contact point is the BCT. Table 2 outlines the roles and responsibilities of DPIE and the BCT in the BOS. The information is provided to assist readers of this report to consider where changes might be made to improve the BOS. The information in this form was not made available to interviewees at the time of interviews.

Table 2. Division of roles in oversight and delivery of the BOS between Department of Planning, Industry and Environment (DPIE) and the Biodiversity Conservation Trust (BCT)

Department Planning, Industry and Environment (DPIE)	Biodiversity Conservation Trust (BCT)
Administer the Biodiversity Offset Scheme	Establish and monitor Biodiversity Stewardship Agreements (BSAs) with private landowners to facilitate credit supply.
Lead legislation and policy settings, including offset rules	Manage the Biodiversity Stewardship Payment Fund (BSPF) and distribution of total fund deposits to landowners to meet management requirements.
Biodiversity Assessment Metric (BAM) and its application. The BAM sets out the scientific method for biodiversity and impact assessment, identifying credit yields and management requirements.	Act as a market intermediary through the Biodiversity Conservation Fund – taking on developer credit obligations and purchasing those credits from the market.
Biodiversity Offset Payment Calculator (BOPC) and setting the charge for payments into the Biodiversity Conservation Fund (BCF).[1]	Managing place-based offsets programs such as those established in western Sydney, Warnervale and North Cooranbong.
Public registers and spot price index	
Credit equivalence statements	
Accredited assessor scheme	

[1]This element is proposed to be transferred to BCT.

4.1 Credit Volume and Type Uncertainty

Landholders report entering the process of creating credits after making a small outlay on desk-top assessment of the type and quantity of credits likely to be available on their land. The assessment often includes assessment of potential value of credit types but little information about recent or pending demand and/or volumes and prices of trades.

Landholders reported two stages at which credit type and quantity are determined which can result in significant variation from expectations, often after costs have been incurred. 1) assessors determine credit type is present and determine quantities of credits, which may vary from desktop assessment. 2) BCT overrides assessment of either type or quantity of credits before BSA approval. Landholders reported that the lack of certainty over the outcome from these processes adds to investment risk. If the second stage occurs, landholders reported frustration that the evidence-base for credit creation is contestable and that their investment in the use of 'accredited' assessors does not adequately reduce the uncertainty.

One landholder expressed frustration that they had hired an accredited assessor only to have the BCT override the assessments at some cost to the landholder.

The issues of credit type and quantity uncertainty were made more acute in some examples where landholders had entered the process under assumptions about the BioBanking scheme and transitioned to the BOS.

4.2 Market Access

Arrangements for listing credits, finding buyers and negotiating prices were not considered sufficient for the costs and risks by many participants. A number of participants indicated that they would not enter the program again if they were given a second chance. This sentiment stemmed in part from belief that they had made judgements about the financial viability of entering the scheme on information that was later found to be insufficient, incorrect or changed without clarity.

Several landholders indicated that where they had access to market prices, the prices did not have sufficient detail to understand the credit value (i.e. it was not clear how the seller was dealing with TFD-filling, CGT/Tax). It was also not clear if TFD-only trades (i.e. developers supplying their own credits) being reported with necessary detail.

Market prices have changed with changes in the BOPC and many participants reported that this had disrupted market confidence.

A number of participants also reported that they had enquiries for their credits from developers but that the developers believed that they could get the credits cheaper and more quickly through the BCT (this issue likely intersects with timing issues for development). As a result, some credits suppliers believe that the BCT is undermining the price of their credits and blocking access to buyers.

Several participants were also concerned that some consultants have privileged access to market demand and market price information not generally available, because they are working as intermediaries but may trade or influence credit trades, leading to a sense of an uneven playing field (in the mind of the landholder participants).

Where landholders were participating in a DICC, they were generally happy that the credits would be created and purchased by a developer and they could concentrate on ensuring the total package was sufficient to meet their financial expectations for the change of landuse and covenant.

4.3 Biodiversity Conservation Fund (BCF) Distorting the Market

Related to the market access issues listed above, a number of participants were unhappy believing the BCT to be playing a major role as an intermediary in the credit market and therefore distorting the market. One credit seller described the BCT use of the BCF as short-selling credits without the usual regulatory constraints on buying out of the short sells. There was a general belief that credit sales had dried up and that a reason for this may be the ease for developers to pay into the BCF rather than negotiate prices directly with offset credit sellers. Participants reported their belief that credit prices were being depressed as direct demand for credits dropped with developers increasingly using the indirect method of meeting offset obligations by paying into the BCF. Participants reported their belief that developers may pay into the BCF for expediency purposes (i.e. ease and timing of decisions for development) which may reduce developer costs, with potential impacts on price signals in the biodiversity credit market.

The function of the BCT assisting developers to meet their offset requirements in a complex market with many Offset Trading Groups (OTGs) is not supported by many credit sellers, and is made more complex by other factors (e.g. change in the scheme design and rules updates, price signals from the BOPC where were used to set expectations, experience of credit sellers being told by developers that they can get the credits cheaper through the BCF).

Some of the credit sellers interviewed began creating credits to sell under price signals generated from the BOPC price in the past. The price being paid by the BCT through the Open Fixed Price Offer Process for the same credits was reported to be well below anticipated prices. Affected landholders believe that the BCT is distorting the market and preventing the development of a liquid market which would function to create demand for their credits at the prices they anticipated at the outset.

There was also a concern from some participants that the price information being generated from developers generating credits on their own land (i.e. price for credit includes the TFD only) might be used by the econometric model and skew prices downwards, further stifling credit trading. Additionally, several participants raised concerns that developer practices might influence market prices and skew the econometric model, including practices such as internal purchase of excess credits to fill the TFD and developers seeking to keep the TFD low with the intention of covering the unfunded management costs themselves (as a more efficient way to invest in their own property). The concerns were raised in relation to the multiple roles held by the BCT in setting rules, potentially holding the econometric model and managing prices through the BCF.

It was not completely clear from direct interviews, however, it is possible that price drop(s) in the BOPC over short timeframes have been interpreted as a consequence of the BCF pathway distorting the market.

4.4 Market Liquidity and Trading

The most frequently raised issues with scheme design and operation were related to scheme rules and trading operations which create uncertainty for the credit seller that they will be able to achieve their financial objectives and not take on unfunded liabilities. The related issues may account for the high number of participants who have not finalised BSAs or who remain in passive management. The issues related to bringing credits to market are conversely related to how liquid the market is and how much the liquid market generates confidence for credit suppliers. A number of participants indicated that they believe the like-for-like and distance rules (credits must come from the same or adjoining subregion) were impractical for creating an adequately liquid market and should be relaxed.

A key issue of scheme design is the requirement to fill the TFD before moving from passive to active management, and also before holding costs, opportunity costs or profit margin can be recovered. Participants reported that they were reluctant to sign the BSA or sell small amounts of credits to begin filling the TFD because the associated obligations were triggered (e.g. covenant and/or CGT) but with high uncertainty about subsequently selling sufficient credits to clear the TFD, costs and required profit hurdles to be financially net positive. The lower the liquidity of the market, or the more difficult participants found it to find buyers or predict prices, the less likely they were to make early trades. This is combined with concern that early trades may be trading the most desirable credits (from the portfolio of different credit types potentially created through establishing a BSA; some participants reported understanding the relative desirability of different credit types) and the landholder might be left with unfunded liabilities and a rump of more difficult to sell credits, depending on demand but also liquidity in the market.

Associated with this was some reporting of landholders who had been required to top-up payments into the TFD to meet expectations for the 'average' credit value based on an assumption of all credits selling relatively easily or quickly. However, several participants reported that they were not willing to sell credits, particularly species credits, even though there was demand and they wanted to begin filling the TFD but that they would have to top-up the TFD from their own funds; i.e. early credit sales may incur a cost that acts as a barrier to begin trading.

The lack of liquidity in the market was a concern for some participants because they were carrying costs associated with establishing the BSA (e.g. assessments, legal and financial advice) and may be carrying CGT liabilities, opportunity costs or land devaluation impacts without certainty of trading into the black. These costs varied by site and participant but there was a general concern about tying up land and capital when the market was not sufficiently active and observable. Participants withholding credits from the market because of concerns about market liquidity has the potential to add to problems of liquidity. There were reports of sites remaining in passive management for up to five years.

Institutional landholders (e.g. statutory bodies, utilities and councils) all found some difficulties with the processes used for establishing a BSA and trading credits given they need to seek approvals through internal processes when there are significant changes in risk or cost variance (e.g. a council or utility company may require processes for approvals and agreeing variances from executive level against original planning, annual budgets or approvals). When trading is not fluid or prices are volatile it is challenging for this type of participant in a different way than it is for independent landholders. Institutional participants such as councils and utilities or statutory bodies may have difficulties in estimating the value of credits held, and therefore encounter challenges in budgeting, reconciliation and approvals. These issues were noted as challenging and a deterrent from being involved in creating or owning BSA sites.

4.5 BCF Open Fixed Price Offer Process

Relatively few participants reported trading through the BCF Open Fixed Price Offer Process. Several participants reported that they watched the tenders and perceived the prices offered by the BCT to be well below prices they had expected from information available when they first initiated the BSA on their land (i.e. contrasting with own or consultant advice on likely credits and credit prices). A few participants also reported that the process of participation in the BCF Open Fixed Price Offer Process was difficult and they did not feel that there was adequate transparency about the prices and decision making by BCT as a market intermediary.

Several participants also reported that they are not regular or experienced traders and find it difficult to meet the requirements of the Open Fixed Price Offer Process with their other work and commitments. Several participants indicated that they had outsourced credit sales to consulting firms to act on their behalf.

One participant indicated that their motivation to undertake a BSA was to protect the environment and that they would prefer not to supply credits to fossil fuel companies, but did not know what project their credits would offset through the BCF Open Fixed Price Offer Process option. This issue is similar to an issue raised in several interviews by council credit sellers, where they want credits to trade locally to help meet a mix of conservation and sustainable development objectives of council. In this situation, blind selling of credits may be undesirable.

4.6 Credit Establishment Timeframes

Participants reported that timeframes for the multi-stage process are not completely clear at the beginning of the process and do not meet commercial expectations for the level of investment potentially required. A range of participants indicated unexpected delays in the process which added to holding costs and increased uncertainty. Delays discussed included general delays of documentation between parties (where participants are not dealing directly with the BCT they have reduced transparency of the processes between assessors/consultants and the BCT), additional checking of assessments (e.g. checking assessor work, questioning PCT mapping, questioning weed mapping, questioning management actions). Some of these concerns with delays may result from a perceived lack of information about participation at the right level for the audience (albeit a diverse audience).

A number of participants, including institutional credit generators, indicated that current timelines for establishing and trading credits can increase costs and trigger barriers to participation. Participants reported that it was ideal to create and sell credits within the same tax year, where tax issues arising from credit sales (e.g. CGT) are significant and losses carried over are problematic for some trading entity types.

4.7 General Information Barriers

Most participants interviewed were one-off credit generators and rely on advisors for most of the assessment, planning and negotiation of the TFD and final credit type and quantity certification. Many participants (including institutional credit generators) reported that the information provided along the way is not considered well matched or sufficient for participants to navigate the complexity of the process, manage contracts with intermediaries or understand their opportunities and liabilities along the way. Information provided was criticised as being designed to manage risks for the BCT rather than inform participants about the process and their risks.

There was an overall sense from participants that the expectations on creation of credits and managing sites under a BSA was not completely intuitive and that landholders may have entered into the contract with a misunderstanding of their relationship to the BCT. For example, several participants who had transitioned to active management reported some difficulties in negotiating flexibility in management effort and cost allocation they believed necessary to achieve the objectives of the BSA. They indicated a belief that they were entering an agreement where the BCT would share responsibility for changed circumstances for management and management costs.

One participant reported that they had listed their property (Including BSA) for sale for 12 months and had four successive offers under contract which all fell through when buyers saw complications of the contract for unsold credits.

4.8 Species Credits

Where respondents had dealt with species credits, there was a mix of views about the value of creating species credits. On balance, participants were not enthusiastic about creating species credits because of the perceived high cost of creation, uncertainty about accreditation (of the species being present under the BCT definitions) and yield, low trading volumes and prices. Most landholders believed that the costs incurred to create species credits were not justified by the likelihood of being able to sell the credits in the near term or for sufficient funds to justify the cost of creating the credits or managing the site. Several participants also noted that the assessment requirements to create species credits could add significantly to the timeline for establishing the BSA or being able to trade credits because some measurements required a seasonal window to execute. This could add to holding costs and act as a deterrent.

One issue that arose is that some landholders who were involved in creating credits through a DICC were unclear about their options or costs to create species credits if they were not desirable to the developer they were in the contract with. There may be an issue of understanding that species credits are tradeable separate from ecosystem credits. There may also be an issue that landholders are not able to access independent information about their options and costs.

Several respondents indicated that they had created species credits but they were reluctant to sell them at low prices because the sale would be at below the expected average price for credits to fill the TFD and they may have a liability to top-up the funds into the TFD from their own pockets. Trading low values of species credits was also avoided if it would initiate the requirement to pay CGT upfront before full recovery of the value of the credits.

4.9 Transition from BioBanking

Three main issues were raised in relation to the transition from BioBanking to BOS.

- Participants who had become familiar with the information, rules and arrangements for BioBanking indicated that they had to ‘retrain’ themselves to the new arrangements. This was reported as an issue primarily because most participants are only very part-time dedicated to biodiversity offsetting and major changes required reinvestment of time to understand and/or communicate up the line in larger organisations. Some organisations are managing (or in the process of creating) sites under both schemes.

- The transition resulted in a recalibration of credit densities and some participants found themselves with fewer credits under the new scheme than they had anticipated under the old scheme. This issue intersected with changes in prices and the availability of price information to understand credit prices.
- Some participants reported a change in the availability of price information with the changes in the scheme and felt that they had less information now than previously.

The two last points also relate to issues of price volatility from the BOPC and perceived interference in the market by the BCT taking payments into the BCF rather than requiring developers to approach the market directly.

4.10 Cost-based Model for the BCF Charge Scheme

There were split views amongst participants about the development of a cost-based model for setting the charge price for the BCF. The issues relate to two views; 1) that the BCF should not operate in the market or only be able to be used in exceptional circumstances because of belief that it distorts the market, and 2) that a cost-based model for the charge scheme could be developed, however, the variability on the credit supply side may make it difficult to balance demand and supply incentives for price movements.

Where participants viewed a cost-based model as possible, they were most concerned about the difficulty of estimating 'bottom-up' costs for a heterogeneous supply market influenced by a range of price uncertainties for different parts of the cost of credit supply (see discussions under Section 5) and information asymmetries which bring risk capital into the emerging market. Some participants reported that they believe a bottom-up cost basis for the charge scheme could bring some stability to price signals. There was an overall concern that the approach was aimed at accommodating developer interests and not landholders (i.e. credit suppliers). This view intersects with participant concern that there was no adequate credit seller representation (see Section 4.11).

4.11 Credit Seller Representation

A number of participants reported that the challenges they faced with scheme design were difficult for them as individuals to represent to the BCT. This was reported in a number of forms including, queries and complaints going unanswered for long periods, turnover of contacts, inadequate and changing written information, impractical requirements being enforced inflexibly, and uncertainty about the independence of advice from assessor companies. Several participants indicated that some of these issues could be better taken up on behalf of credit generating landholders by an industry body or representative group acting on behalf that class of participants in the offset scheme. The lack of such an organisation was contrasted with the availability of representative bodies for developers (e.g. NSW Minerals Council). The role of industry representative bodies for developers was also raised by developers interviewed as a positive with respect to their desire to have input into market design and operations.

4.12 Additional Issues

A number of additional issues were raised by participants which create challenges for them to overcome barriers to participation or work within the current design. These include

- Some landholders, including councils, would like to be able to join multiple sites into one BSA for efficiency and consistency purposes
- Some landholders who own separate properties that are covered by one old BioBanking agreement find it difficult to manage under the joint arrangements established for the purpose
- Several participants indicated reluctance to go further with development of BSAs on new sites if there is negative publicity around the scheme

- A landholding authority indicated that price uncertainty for credits (causing potential problems for asset valuation, balance sheet and auditing issues) was viewed differently by different parties within the organisation (e.g. environmental unit, business and finance unit, executive) but that executive was prone to caution under uncertainty
- Several participants had purchased existing BSAs and reported their belief that the previous managers had not kept up the management but had drawn down the TFD and left a management liability

4.13 Summary: Program Design and Operations

The majority of issues raised by participants in relation to program design and operations relate to information problems. The process of generating biodiversity credits normally includes the need to grapple with a number of uncertainties with cost implications. Information problems have arisen for some participants due to scheme changes, guideline or changes or changes in guideline interpretation. All of these information problems may be increased by the complexity of the BOS and the challenges of communicating with a disparate, and often non-specialist, audience for scheme information. A perception of an additional information problem was also evident where participants believe that some operators in the market have better information or access to information to improve their position. Many of these issues were reduced for participants developing a BSA under DICC as the information load was reduced and costs were shared between parties in the DICC.

Information problems can impact on biodiversity credit generation rates and therefore impact liquidity in the market, with consequent impacts on information for other parties. There was reporting of information problems and associated trading problems from all groups interviewed.

5 Bottom-up Credit Price Components

The semi-structured interviews were able to generate conversation about elements of credit establishment and trading which may be useful in developing a bottom-up costing approach for the BCF. Discussions focussed on issues of costing and generated detail of costs only to the extent necessary for understanding issues underlying cost considerations. A more quantitative and focussed methodology would be required to understand the costing approaches used by different types of participants in different locations with potentially different credit types. The key themes raised in relation to costing credits are listed below under a series of discrete headings.

5.1 BSA Establishment Costs

The upfront costs reported by participants was highly variable based on property location, size, credit types available and whether a DICC was involved. When the upfront costs were self-funded, participants reported that they made the investment on assumptions about the efficiency of the credit creation process (credit creation within months not years), ability to trade within reasonable timeframes. Some participants were frustrated at upfront investments being tied up for longer than expected, often with limited understanding of the timelines for finalising processes.

Most participants reported that consultant prices could be reasonably understood. However, some were not investing in the creation of species credits, or regretted creating species credits, given perceived low prices and slow trading of these types of credits.

Landholders who were involved in DICC had lower upfront costs and were generally accepting of the responsibility to seek their own advice on tax and legal matters. However, several landholders had been surprised at discovering the CGT liability late in the process of DICC, possibly because they were not active participants in initial outlays for credit creation with a view to trading (this issue was covered by the DICC). One landholder also reported that the DICC process offered to pay for independent legal advice and the lawyer had invoiced the developer directly but provided advice to the landholder, leading to some uncertainty about the necessity or independence of the advice.

On the whole, landholders believed the upfront costs could be estimated and borne where there was reasonable certainty of the timeframe for being able to actively trade credits, and where credit prices and trading volumes are transparent in market operating without interference. There is clearly an emerging group of consulting groups working in the provision of services to landholders and developers to assist with BSA creation. There were reports of a suite of contracting approaches being used to engage consultants, indicating a growing sophistication in the sector and growing awareness of cost information.

Upfront costs are those costs borne by the credit generator/seller before they have sold sufficient credits to reach profitability. Some holding costs are incurred before the BSA is signed and some continue or are incurred up until sufficient funds have been received for the BSA to be profitable. The types of upfront costs raised by participants included

- Desktop assessment for feasibility and profitability
- Site assessment costs which could include variations depending on site issues, inclusion of species credits or not, BCT queries of assessments
- Independent ecological advice to verify assessments, management actions and implementation costs
- Site survey costs, e.g. if there will be title changes or if the cadastre is misaligned
- Tax and financial advice, including individual tax rulings in some situations. Immaturity of expertise on the BOS in the financial sector could add uncertainty to the cost of this advice, including the need to seek additional expert advice
- Legal advice. Immaturity of expertise on the BOS in the legal sector could add uncertainty to the cost of this advice, including the need to seek additional expert advice
- Interest on borrowings to cover costs above if there are delays in creating the BSA and trading sufficient credits to cover holding costs

- Tax liabilities as a consequence of selling credits (including CGT for some entities)
- Passive management costs before the TFD is filled, including costs of managing actively during passive management to avoid accumulation of problems not covered by passive management responsibilities (e.g. control of new weed or pest incursions or outbreaks)
- Trading costs, including broking and legal costs
- Any opportunity costs borne under restrictions of passive management before the TFD is filled and credit trading has reached profitability

Developers generating credits through agreement with landholders (DICC) report that there are cost implications from the many complexities in dealing with landholders who have motivations including conservation, farm management and income but who do not deal with the type of technical and legal issues arising from creating a BSA. Developers reported incurring costs of educating landholders (about the scheme, sufficient for the landholder to begin the process of contracting with the developer to generate the credits) and providing the technical support, advice and assurance processes to create the credits (particularly outside the Cumberland Plain and North Coast zones).

Developers also reported costs from changes in site assessments (e.g. reinterpretation of PCTs by the BCT after assessments have proceeded some way) when working through a DICC because the delay can have costs and the multi-party agreements have additional complexity which can add delays and costs.

5.2 Land Valuation and Opportunity Costs

Opportunity costs and land valuation are considered together because land value tends to reflect production and use values which make up opportunity costs incurred on conversion to conservation under a BSA.

Participants reported a range of issues with land valuation which relate directly and indirectly to the creation of a BSA, and inexperience in the land valuation and banking sector dealing with BSAs. The reported range of land value impacts from BSAs went from removing all resale value from the land (-100%) to positive values up to +40%. There was a small cluster of valuations around -30% to -40%. The discounts (or surplus) reported related to land use and land configuration and was often independent of the value of the TFD associated with the title. This suggests that the TFD is often being treated as a funded liability and not as an asset.

Land configuration – landholders reported different views about whether they believed, or had advice, about the impact of a BSA on the value of their land. Landholders who held a BSA on a portion of their land alongside a sufficient development footprint area or a production area, generally believed that the BSA did not decrease the value of their land (where there was limited opportunity cost) and may increase it (due to the TFD attached to the parcel). However, landholders who had created the BSA with insufficient sparing of a development footprint or production area reported that land value had been discounted. One landholder reported that their bank had valued the BSA area at zero and required the refinancing of the property on the basis of the developable area outside the BSA (i.e. the BSA area could not be taken as collateral for the loan on the whole property).

The interviews did not provide sufficient insight to develop a complete picture of the impact of creating a BSA on land value, however, there were indications that the valuation sector may still be grappling with the question and how it changes for different land types and configurations. A statutory developer indicated that they were still unsure of the accounting treatments on land value changes with BSA and that landholders they had dealt with were having trouble with the valuation of the land and the credits under a BSA.

Land use – respondents had limited knowledge of what the impact of a BSA might be on land value where the land parcel was of a type which rarely sells as a discrete property (i.e. an averaging problem, for example, in agricultural regions where native vegetation/ecosystems are always sold as a component of an agricultural enterprise and never as purely ‘bush blocks’).

Most participants reported that they had reasonably good understanding of the opportunity cost of taking up a BSA. Agricultural landholders reported that they were able to estimate the production value forgone from removal or reduction in animal production from a BSA site.

One issue for opportunity cost calculation which was raised by several landholders was that the process of establishing a BSA requires determination of ecosystem boundaries and that revision of boundaries after initial calculations had been done had presented problems. Where grazing rights had been changed due to reclassification of ecosystem areas, production costs may be incurred, including of the land configuration makes adjustment difficult. These types of issues were reported as problems for scheme operation but also as having impacts on the landholders initial cost model which may change to limit profitability. In a few cases landholders indicated that they would likely treat their holding costs as sunk costs and not continue with the BSA establishment or trading to fill the TFD.

Respondents generally seemed prepared to account for potential land value changes within the value created through credits under the BSA, however, uncertainty about trading efficiency and prices for credit sales under current arrangements were of concern to landholders who believe their property values and or production values had decreased with the covenant.

Opportunity costs considered by landholders included additional costs from management restrictions which the landholder saw as a cost, sometimes an unnecessary cost. Examples of this included restrictions on camping, including for some ecotourism (where the landholder believes the impact on the site is minimal) and hunting of feral animals, where the landholder believes the action is consistent with the intent of the BSA and the restriction reduces income from the enterprise.

5.3 Profit

Interviewees were asked about their expectations of the ‘pay off’ from creating and selling credits. Answers were never direct and indicated that different landholders hold different ideas about pay off or profit based on a complex mix of motivation, uncertainty about implementation costs, opportunity costs and capital appreciation, as well as market price uncertainty and lack of clarity about the pricing structures of other participants in the market, including the BCT.

Landholder responses indicate a range of perspectives from highly profit motivated at one end, to mostly not-for-profit but conservation motivated at the other end. Profit and conservation motivation are not necessarily mutually exclusive, however, some participants indicated that they were most concerned that the TFD was sufficient and not very motivated to receive credit revenue above the value of the TFD. One landholder reported that they intend to leave a private trust associated with the land when they sell to ensure future buyers have sufficient funds to achieve conservation actions which they believe to be underfunded in the TFD.

Profit or pay off responses are likely confounded by reported rapid increases in property values for agricultural land in NSW and land within the development envelope of Sydney and the North Coast over the last two to five years. Some landholders believe that land prices have gone up but perceive credit prices to have gone down in the same period, reducing profitability from entering a BSA.

Given uncertainty about trading quantities and prices, some landholders reported that they were prepared to wait to trade. This indicates that participants are prepared to carry holding costs until they believe acceptable profits can be achieved through credit sales.

5.4 TFD Value, Management Costs and Flexibility Post-establishment

A range of issues were raised in relation to the TFD value and calculation of TFD components. Some respondents wanted the TFD to be lowered and believe that prices have been over-estimated. Some respondents believe the TFD is not sufficient to manage the property and want more funds deposited for contingency. However, the general view is that the TFD should be determined by the BCT (or by assessors from BCT schedules) and risks managed accordingly, i.e. that the BCT is flexible in management compliance assessment with respect to the availability of funds to undertake works.

TFD funds are not held by the landholder and not transparent what the value will be in future years. Some landholders perceive they are taking a risk on the TFD being invested to maintain/increase in value without the ability to manage the risk themselves. However, participants did not indicate any preparations for managing the risk of costs to meet obligations after initial TFD funds are expended if yield on the TFD investments is not sufficient. The sense was that that problem was some way off or that flexibility would be required.

A critical issue for TFD value is the threshold it sets for transition from passive to active management. A number of participants reported that they were reluctant to sell credits and transition to active management if they were not assured that they could sell sufficient credits to recover other costs (e.g. holding costs, opportunity costs) before doing so. This issue intersects with participant concerns about the lack of a liquid market, including where they believe that the presence of the BCF reduces liquidity and undermines credit values.

A number of participants who were managing established BSAs believe that the annual payments from the TFD are insufficient or insufficiently flexible to manage the property cost-effectively. Examples provided include

- Undervaluing infrastructure costs (e.g. fencing or road maintenance) either because of insufficient costing of things like access for fence repair in difficult terrain or insufficient provision for increasing costs of materials and/or labour in some locations. Participants also reported difficulties in costing some items upfront which could later lead to under costed actions, i.e. need for involvement of RFS in hazard reduction burning and potential insurance implications.
- Restrictions on using heavy machinery or fire or herbicides for weed control in difficult terrain or circumstances where alternatives are unfeasible
- Underestimation of costs for upkeep on publicly accessed sites, track wear and tear, rubbish dumping etc.
- The presence of undetected weed or feral animal species (one landholder reported high deer numbers when deer were not listed on their BSA) for which no funding was allocated
- Unanticipated responses of weeds or feral animal species post bushfire or drought which leave large liabilities for which funds have not been adequately provisioned
- Timing issues for site inspections and annual payment releases which can result in landholders carrying costs (including interest on the funds) waiting on approval. Several participants identified that this type of ongoing cost occurred where the management activity window was driven by seasonal requirements but inspections and payment approvals are not synchronised to expenditures.

Several participants indicated that they believed the monitoring requirements included in BSAs were not costed with clear understanding of the obligations and benefits to the landholder.

Most landholders had given little thought to the liabilities for long-term management of BSAs after the initial TFD period. However, several participants did raise concerns about whether costs (TFD) had adequately provisioned for long-term liabilities under uncertainty, e.g. natural disaster recovery and climate change.

5.5 Tax and Legal Advice and Capital Gains Tax

Participants reported a suite of novel tax and legal issues related to participation in the BOS. These issues also intersected with accounting and legal professions, with little experience of the issues relevant to the BSA and credit creation and trading.

Key issues were the requirement for some trading entity types to pay a CGT calculated for the whole TFD but when the first trade occurs, regardless of the size of the trade. This effectively translates into up-front taxation with no guarantee of amortising tax in some situations, no guarantee of selling all credits on which the CGT is calculated or for a price the CGT is calculated at.

There were also some uncertainties about tax liabilities on income and costs associated with credits and the BSA but the interviews were not sufficient to untangle the issues in relation to the multiple possible legal entities which have different tax liabilities.

Most participants had sought legal and accounting advice but had not found advisors who were fully briefed on the issues related to this type of income. A number of participants had sought independent tax rulings from the ATO, primarily in relation to their CGT liability. The cost of seeking a CGT ruling represents a holding cost, and where this was unexpected, landholders felt that the BCT should be providing guidance in the early stages of developing a BSA. Some landholders indicated that they believed that significant issues such as tax liabilities should be better explained upfront and that the lack of information had led them to make choices they regret, or which cause them distress.

Where landholders were involved in a DICC, they could seek independent legal advice. There was reporting that the contracting developer sometimes offers to cover the cost of third-party legal advice to a cost limit, which was reported as helpful but raised potential issues of the independence of the advice.

5.6 Transition from Passive to Active Management (TFD filling)

There were a number of comments in relation to the threshold effect of filling the TFD and transitioning from passive to active management. Landholders generally reported that they were reluctant to transition to active management if they did not have reasonable certainty that they could sell sufficient credits to cover holding costs, opportunity costs and profit. A number of landholders indicated that they were not enthusiastic to sell credits and fill the TFD in a situation where they believe the market is distorted by the BCF accepting payment at levels which result in depressed prices for credit suppliers. Costs incurred while in passive management are considered additional holding costs.

5.7 Summary: Bottom-up Credit Price Components

Participants were able to identify the core costing components of BSA generation and biodiversity credit holding and trades. Some costs were clearly task specific and vary according to the type of land over which the BSA will sit (e.g. desktop and site assessments). Other cost components include considerations of risk and contingency which are less predictable as they depend more on landholder motivations, attitudes and the dynamics of the offset credit market, but also markets for land and markets for commodities (e.g. stock). Additional costs may apply to some participant types and not others e.g. CGT. Design and the dynamics of the biodiversity offset market appear to have considerable impact on costs as credit sellers seek to reach profitability under uncertainty use dynamic pricing and trading approaches to manage risk and maximise profit.