ABSTRACT

Focus on the adverse impacts of flood mitigation structures on the North Coast of NSW began to strengthen during the early 1990’s due to ongoing agricultural impacts, pressure from fishing industries and the increasing understanding and identification of acid sulphate soils. Competing interests, a lack of science and limited government investment meant early attempts to address these issues were severely limited. To diffuse mistrust and progress what is now generally considered as a mutually beneficial process, Clarence Valley Council (formerly the Clarence River County Council) commenced a project that got all the stakeholders and interest groups at the one table.

From the first trial project struggling to achieve mutually beneficial outcomes in 1997, the Clarence Floodplain Project (CFP) has developed processes and products that have now been incorporated into seventy watercourses and wetlands of the Clarence Valley. The process is now widely accepted by the floodplain community, in particular landholders. Recognised and awarded as a model for integrated management of floodplain environments, the CFP has provided many benefits to the environment and associated stakeholders. By working closely and incorporating the collective knowledge of research organisations, local government authorities, state agencies, industry groups and landholders, the CFP has ensured decisive actions and the success of on-ground works in the Clarence.

Being successful in dealing with issues of the past and present, the CFP is also seen as a vehicle to pursue environmental issues of the future. With over $200 million dollars of assets invested in the physical management of floods and a significant potion of this in low lying rural areas, climate driven sea level rise and increases in rainfall will again force another readjustment of management outcomes.

DEVELOPING THE FLOODPLAIN

In the first half of last century, rural communities in the Clarence Valley were incurring around $30 million (2009$) in rural damages after every major flood [1]. In addition to these losses, the health and viability of urban communities was suffering due to their high dependence on rural sectors. As such there was a significant driver to change the management of floods in the valley.
To develop a strategy for the Clarence, an advisory committee consisting of representatives of local and state government departments was established in the early 1950’s. While early investigations of the committee centred around daming the Clarence, consultation with the community determined preferences for flood warning with localised structural levee and drainage works. In 1959, the Councils of the lower Clarence formed a County Council specifically to progress these flood mitigation works. A flurry of activity occurred up to the mid 70’s with most of Council’s current rural infrastructure installed during this period. As works progressed significant improvements were experienced by residents of the Clarence Valley, allowing the Council to forge strong ties with the rural community and creating further demand for new projects. While early reports from this period identified the need to maintain water levels in swamps, most works abandoned this principle in the productivity gains made from reclaiming previously wet lands. Consequently agricultural lands expanded, as did the settlements dependent on them. This prosperity forged strong connections between Council and the rural community. But all this was at the cost of dramatic ecological change. It is estimated more than 90% of wetlands have been destroyed or degraded by drainage [2], and much of the subtropical rainforests, casuarinas, eucalyptus and melaleuca woodlands and forests that formed the remainder of the lower floodplain have been lost.

During the late 1970’s to the early 1990’s, the focus of flood mitigation in the Clarence shifted from the rural sector to the urban. While significant infrastructure and planning outcomes where achieved for urban dwellers, there was a loss of focus and consequent relationship with the rural sector. This loss of social capital proved difficult to regain when the focus again returned to the rural sector during the early 1990’s.

Increasing government, community and industry concerns at the quality of discharges and adverse impacts of drainage infrastructure forced all these stakeholder and local landholders into trial projects. While other issues such as a lack of science, knowledge and funding contributed to these projects stalling, the major issue was always this forced relationship and urgency between regional priorities of organisations and local landholders rights. Further, as these groups had no other defined relationship, altruism was not accepted and Council found itself providing mediation rather than driving progress in this area.

11 years ago Council took a new approach and established the Clarence Floodplain Project (CFP). This project involved grouping interested community, government and industry stakeholders together and forming partnerships to tackle environmental issues throughout the floodplain. A steering committee was formed with broad membership from landholders, NGO’s, state agencies, industry bodies, environmental groups and Council. The committee drove priority issues and provided financial support to the project. Council then negotiated directly with groups of landholders to achieve anything from single to multi-objective outcomes, depending on their capacity or commitment.

One of the key outcomes of this project was to make those with regional priorities partners to the process, rather than drivers of reform on individual drainage systems. In a matter of a couple of years, Council went from mediating conflicts to brokering investment between interested organisations and landholders. This management approach addresses regional priorities in a systematic way, yet allows
landholders to retain control of the land they manage. And this relationship has been highly successful. Landholder interest has significantly increased in the project and sections of this community are now approaching council directly to see what the project can do to benefit them. Regional priorities are also being met with most current members having invested in the project with technical and financial assistance since inception.

Under the CFP, more than 70 watercourses and wetlands have had engineering structures fitted to reduce the impacts of floodplain infrastructure. It has allowed the return of more natural hydrological flow regimes and the passage of fish and other aquatic fauna. Water quality has improved and transportation of ASS products reduced. Revegetation is occurring of degraded wetlands and agricultural productivity of these areas is also being restored. More than 270 landholder volunteers have attended training workshops and agreed to actively manage watercourses adjoining their properties. In doing so, Council has also benefited from reduced operational costs, reduced chemical and mechanical weed management, increased reporting of faults and improved community profile.

**ISSUES OF THE FUTURE**

The investment by Council in developing successful partnerships will also allow it the flexibility to deal with emerging issues. The impacts of climate change and asset decline are two issues facing rural flood mitigation infrastructure.

The increasing age of rural drainage and levee assets will lead to increasing costs for repair, reconstruction and relocation. The possibility of deeper submergence of these assets through sea level rise also raises the prospect of escalating costs through reduced function, increased ponding, blockage clearances, gate maintenance and asset degradation. Wetland restoration is also expected to become more complex with variable weather patterns and sea level rise.

Like the early 1990’s, Council, the community, government and industry are still developing our knowledge about future risks and what adaptation strategies will be deployed to address these issues. However with previous investments in establishing relationships and partnerships through the CFP, it is expected the floodplain community are in a better position to face these challenges.

**REFERENCES**
