Bayswater
Catchment Management
Workshop Findings

April 1991

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Bayswater Catchment Mangement Workshop Findings

Bayswater Integrated Catchment Management Steering Committee

Compiled by V.V.Klemm
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1.0 Introduction

The Bayswater Catchment Management Workshop was conducted by the Waterways Commission and the Bayswater City Council on behalf of the Bayswater Catchment Management Steering Committee on Saturday March 16,1991. The workshop began the public consultation process for the development of the Bayswater Catchment Management Plan.

In total 33 people, representing a broad cross-section of the community, participated in the workshop. The wealth of knowledge, ideas and suggestions recorded will be used initially to establish Task groups to address specific areas and then more generally by the Steering Committee as an indication of community concerns and expectations.

The workshop began with a series of brief talks about Integrated Catchment Management, how the process will work in Bayswater, how local Government is involved and the preliminary monitoring results collected by the Swan River Trust. Notes from these talks have been included in this document.

Dr Judy Edwards MLA, Chairperson of the Bayswater Catchment Management Steering Committee opened the workshop and welcomed all participants. There were three aims of the workshop. These were:

1. To increase understanding of Integrated Catchment Management and how that relates to the concerns around the Bayswater Main Drain.
2. to increase awareness about and the role of the Steering Committee.
3. To identify ways that the community can work together with the Steering Committee to develop the Bayswater Integrated Catchment Management Plan.

The issues raised by participants will be used by the Steering Committee to form Task Groups.

Dr Edwards acknowledged the following Steering Committee members:

Mayor John D'Orazio (Bayswater)
Ron van Delft (Bassendean Community Representative)
Michelle Neervoort (Stirling Community Representative)
Arthur Watson (Bayswater Community Representative)
Val Humphrey (Swan River Trust)

Dr Edwards extended thanks to the representatives of government organisations present. A special welcome was extended to the students from the Science Club and media unit of the John Forest Senior High School who recorded the workshop proceedings and to Mr Mike Erith, a teacher at JFSHS, for his efforts at involving students in the Ribbons of Blue programme.

1.1 Integrated Catchment Management in WA

by Dr Ray Wallis, Office Of Catchment Management

ICM is a philosophy of approach, taking a whole perspective in terms of management of our natural resources on a river catchment basis. This usually means large river catchment basins which have towns and cities and lager rural areas. But the same philosophy can apply on a smaller scale or a subcatchment, which is the case for the Bayswater Main Drain. Although this catchment is largely urban the same principals apply.

THE ICM PROCESS

The Government formed the Office of Catchment Management to provide a focus for integrated catchment management in the State. One of the activities has been to articulate the doings of ICM., what it means to actually undertake catchment management in your area. Figure 1 illustrates how the process works.

Setting boundaries has already been done for Bayswater. It is important to define the area that will be involved.

Environmental limits is looking at what appropriate limits for various aspects of the environment, called assimilative capacity.

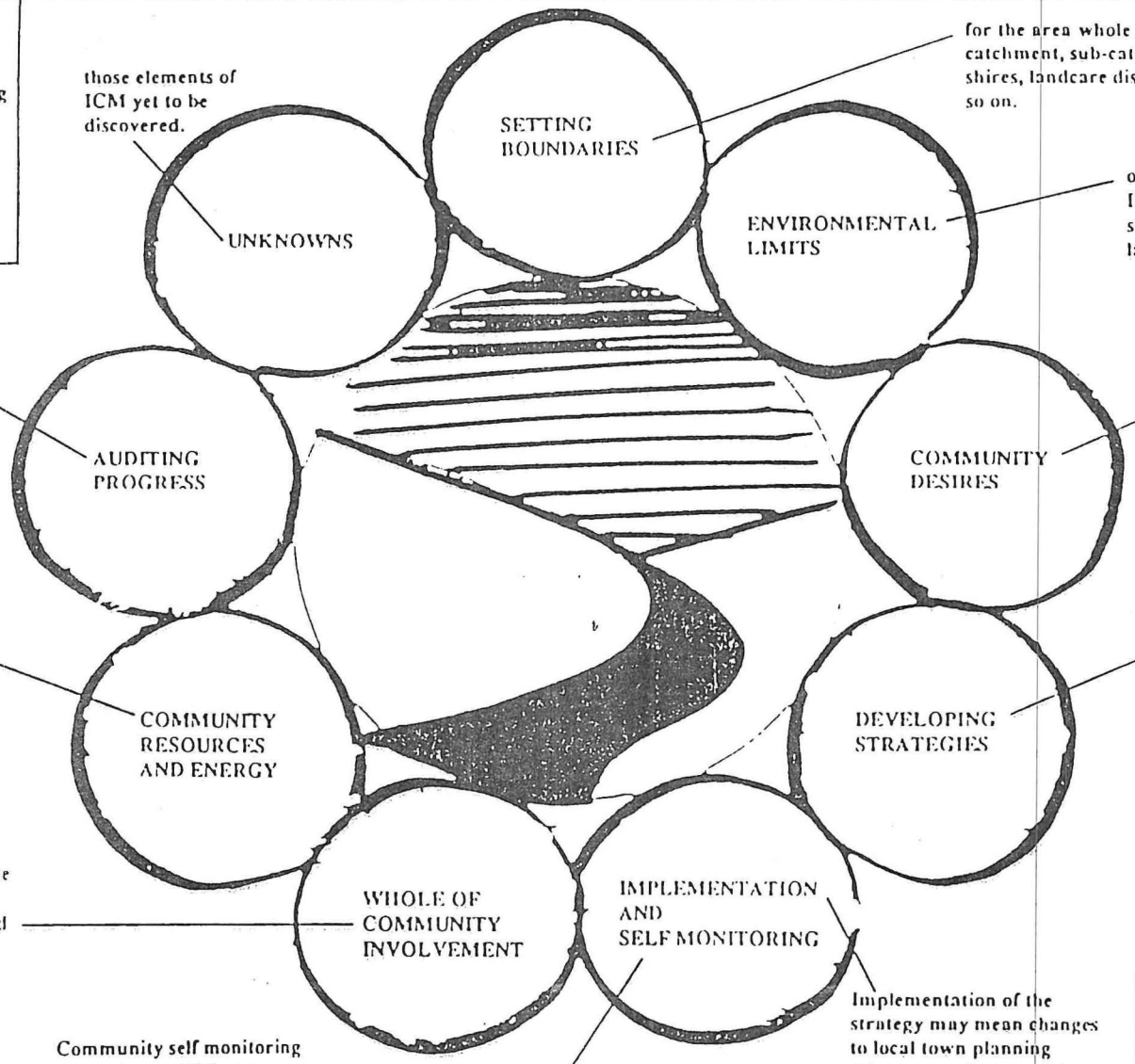
Community involvement and desires. Does the community like to see the drain dirty or otherwise and how is it going to work towards that.This is the point of involving the community in determining how it will manage the land-uses in that catchment. For example, if the desire is a crystal clear drain, the possible catchment activities that may result may be onerous on certain groups of the community and therefore the whole community needs to be involved in the resolution of the aims for the catchment.

When this has been done it is necessary to develop strategies to achieve these

THATS WHY EVERYONE SHOULD BE INVOLVED IN I.C.M.

WHAT IS I.C.M.?

It is planning and managing our natural resources on a river or ground water catchment basis to achieve sustainable use which provides for social and economic development.



those elements of ICM yet to be discovered.

for the area whole river catchment, sub-catchments, shires, landcare districts and so on.

or assimilative capacity. Determining these for each segment of the environment; land, river, estuary etc.

of the local community. Comparing the environmental limits with current land uses and determining what land uses the local community wants for the future.

The community collectively develops strategies to ensure that objectives for the catchment are managed.
The strategy is the basis of a catchment management plan and should identify actions and costs to everyone.

Implementation of the strategy may mean changes to local town planning schemes, environmental policies or other regulations.

Community self monitoring networks established to measure changes. OCMs' Ribbons of Blue program is ideal.

The wider community of the State need the opportunity to input to locally developed catchment plans. Local governments would be the best link to State agencies like the EPA.

Human resources and financial endeavour are needed to stimulate many of the ICM elements. Federal, State and private sector resources should be tapped.

should be conducted annually at the local and State level. OCM will conduct State level audits.

I.C.M. is:-

working together, caring for our land and water.

objectives. This will involve articulating the strategies, increasing the understanding about what they mean and getting them out into the community generally.

Implementation: its one thing to have an objective goal its another to try and put together a strategy by which you are going to achieve it. The object needs to be one that you can implement and requires an implementation strategy which will involve local government and the community to achieve those things.

A lot of people believe that it is the responsibility of Government to monitor things (e.g. W.A.W.A. monitoring drains and Waterways Commission monitoring various aspects of the river). When it comes to achieving the communities objectives it is very important that the community becomes involved in the whole monitoring process. This is called self-monitoring (e.g. Ribbons of Blue). One project for the Main Drain may be the identification of all the drain outlets by colour coding. This is aimed at school children and is similar to a programme running in Seattle. Students record S= sewer, R= river and so on in colour coding throughout the entire catchment. So the community becomes aware of where wastes disposed into the drain end up. Another project relating to phosphates may involved isolating a small subcatchment totally serviced by septic tanks and working with the women in particular in the community to look at the ways in which phosphate free detergents could be used. The subcatchment could then be monitored downstrean to determine what impacts occur. The Office of Women's Interest is very interested at becoming involved in any sort of environmental programme of that nature.

It is necessary to involve the whole community and this workshop is the beginning of that. Also it is important to mobilise community resources and energy. This may include involving the private sector (e.g. sponsorship).

The auditing process tells you how far you are going and how well you are doing it and where you are falling down.

ICM is a whole new process in this state and each catchment is likely to come up with something that hasn't yet been thought of.

How is ICM undertaken? I note in the workshop brochure that a Steering Committee has been established. This type of approach is happening throughout the state. The Government's Integrated Catchment Management Coordinating Group which organises about 10 government agencies in natural resource management and has been working to stimulate the community and to put in place catchment coordinating groups which are community not government driven. Sometimes these groups are mixed. For instance on the Leschenault Estuary the catchment management is coordinated by the South West Development Authority and has representatives from farmers, developers and various government agencies.

There is work being down to put a catchment management group in place for the Blackwood River.

The process being used in Bayswater is similar to other areas and I encourage you to continue and OCM is there to provide any information, if required.

1.2 Integrated Catchment Management in Bayswater

by Dr Judy Edwards,MLA, Steering Committee Chairperson

A map from 1925 showing the wetlands in Bayswater with an overlay of the approximate location of the Bayswater Main Drain was shown. It can be seen that the drain has been linked through old wetlands. Some of these wetlands were used for peat mining and market gardens. There is a very solid history, at least since 1925, of activities occuring in the catchment that may need investigation.

There has been concern about pollution in the drain and the river for a number of years. There have been numerous groups formed to look at wetlands, the foreshore, concerns about pollution of the fish in the river and concerns about industrial pollution into the drain. Community groups have been formed and the Swan River Trust and the City of Bayswater have been monitoring the pollution. All of this activity has tended to happen in isolation and has not always answered the community concerns. The aim of having a Steering Committee for the Integrated Catchment Management Plan is that a group of people are charged with developing a plan that all of us can own. That means we can own the plan whether we are members of the community, of the industrial community that works in the area or whether we are from a government

department and have a more technical interest in what is happening.

The structure of the Bayswater Integrated Catchment Management Group is shown in Figure 2.

The information gathered at this workshop will be used to form Task Groups. The Technical Advisory Committee will provide technical input and clarification of technical issues. The Steering Committee will be assessing all of that and then developing the overall plan.

The Steering Committee consists of representatives from the three local government authorities affected by the Bayswater Main Drain, that is the Cities of Stirling and Bayswater and the Town of Bassendean; community representatives from each local authority; Swan River Trust; the Water Authority; myself as a parliamentary representative and we are hoping to have representatives from the Environmental Protection Authority and the Department of Planning and Urban Development. These two organisations will be important during the implementation and evaluation of the plan.

The tasks of the Steering Committee include:

1. Identify issues based on community inputs and consultation (e.g. through workshops)
2. Establish Task Groups.
3. Receive reports from Task Groups about:
   a) the more detailed description of the task;
   b) tasks they can proceed with;
   c) problems with tasks - resource inadequacies, tasks seen as unnecessary;
   d) progress with tasks.
4. Decide about timetabling tasks in order of priority.
5. Find solutions to problems in proceeding with tasks. Some solutions may be able to be implemented immediately.
6. Rearrange if necessary, the composition of groups, the tasks for each group.
7. Decide on new tasks, eliminate unnecessary ones.
8. Include new information (e.g. from pollution survey) as it becomes available, into the appropriate task(s).
9. Be satisfied that new problems within the catchment which come to light are tackled.
10. Keep the community informed about the findings and activities. This is probably the most important role.
11. Develop an overall Integrated Catchment Management Plan.

Task groups have similar aims including:

1. Taking responsibility for specific tasks and setting objectives.

2. Better definition of the task by identifying its elements and the sequence in which they should be tackled.

3. Timetabling.

4. Collecting baseline data (survey, photos, etc.).

5. Allocating sections of the task to members of the Task Group or deciding if external resources should be used.

6. Costing the tasks and identifying sources of funds where necessary.

7. Proceed to tackle those tasks where the need and the methods are obvious, the facilities and staff available.

8. To report to the Steering Committee, the proposed timetabling of the task (to ensure it fits within the overall strategy) and any problems hindering its completion.

9. At the completion of the task to report the results to the Steering Committee.

It is important that the Task Groups contain community representatives.

There are many departments that may be involved at various times in the Technical Advisory Groups or in Task Groups. These include:

City of Bayswater

City of Stirling

Town of Bassendean

Swan River Trust/ Waterways Commission

Water Authority of W.A.

Department of Planning and Urban Development

Department of Marine and Harbours

Environmental Protection Authority

Health Department of W.A.

Chemistry Centre of W.A.

What we are trying to do is to clean-up the Bayswater Main Drain in a way that the whole community is involved, in a way that we are informed through technical knowledge and assistance and in a way that will encourage us all to work together to try and resolve a problem.

1.3 Local Government Involvement

by Mayor John D'Orazio,Bayswater City Council

From a local Government perspective this exercise can be divided into two areas; reactive and proactive. The reactive area is the role of local authorities to police the various health requirements and environmental legislation that are in place. This an established role of local authorities . As there are some 27 different government agencies all trying to do the same thing. So it is important that there is a group such as the Integrated Catchment Management Steering Committee to bring all those organisations together.

The proactive area is the area where local government has the opportunity to show the lead. I think that the Cities of Bayswater and Stirling and the Town of Bassendean have shown that lead in establishing the first urban Integrated Catchment Management proposal.

I think the role of local government is as facilitators to make things happen. I think this whole exercise is going to lead to a number of outcomes not in the least the recognition that the biggest polluters of the river are ourselves, the ordinary residents through fertilizing lawns, motor vehicles and septic tanks that we use every day.

The City of Bayswater has tried to be proactive in going to the industrial area and evaluating the activities occuring there, explaining to industry what they are doing wrong and educating them. Some people just do not realise that what they dispose of down a drain may in fact be going into the Swan River and sometimes they are not even aware of the chemicals they are using. This is a total education programme through the industrial area premises by premises trying to identify problem areas and rectifying these. Prosecution is one way to rectify problems however, I consider that the process of education is a more long-term view of controlling pollution.

I believe that as a group, including local authorities, state government, local people and local industries, we all get together and to work together for the environment.

The role of the local authorities is important as we will have more resources available at the local level that can be made available to groups such as the Steering Committee. Staff can be available to facilitate various activities undertaken by the Steering Committee. Its great that Stirling, Bassendean and Bayswater local authorities have made commitments to support the integrated catchment management process in Bayswater.

It is important that at the end of the day we have a plan that is not only acceptable to the community but to industry, the Government, the local authorities involved, and government agencies with legislative powers.

From our point of view we are a very small cog in the wheel but we are an important one, just like every other branch of this whole exercise is. Its only by all of us working together that we are going to achieve an improvement of our environment, so that our children in the future will be able to enjoy what we do today.

1.4 Swan River Trust Monitoring

by Verity Klemm,Swan River Trust

This talk will take a more technical approach to the previous speakers. I intend to present some of the preliminary results from the two monitoring programmes being undertaken by the Swan River Trust that relate to the drain and its catchment.

The first programme is a survey of the Swan River adjacent to the drain investigating the contamination levels of pesticides and heavy metals in the water, sediments, fish, mussels and shrimp. The second programme is called the Bayswater Catchment Monitoring Programme. That is attempting to partition the pollutant input from residential and industrial urban areas.

The concentrations of pollutants from a drain are considerably diluted in a receiving body due to mixing and dilution.

Environmental criteria used to protect the river environment are not normally applied to drain water. However, they can be used as a guide to the quality of drain water.

1.4.1 Pesticides and Metals in the Swan River

The aim of the programme is to assess levels in sediment, water, mussels, shrimp and edible fish. The results presented here are from one sampling occasion only and the Trust is continuing this programme to gain more information.

Heavy Metals

- all metal concentrations in waters of the Swan River were below environmental criteria.
- when a drain carrying pollutants to a large receiving body there is considerable dilution in the concentration of pollutants in the receiving body due to mixing and dilution.
- environmental criteria used to protect the river environment are not normally applied to drain water. However, using them as a guide, only copper concentrations exceeded the criteria (NB in the more intensive catchment monitoring most heavy metal levels were above the criteria).
- analysis of river sediments and the tissues of mussels, shrimp and edible fish (yellow tailed grunter, sea mullet, tailor, yellow eye mullet) showed low levels of contamination indicating no environmental or health problems.

Pesticides

- three organochlorine pesticides were detected in waters, sediments and edible fish; Chlordane, Dieldrin and DDT.

- levels of DDT and chlordane in the River water samples were below environmental criteria.

- levels of dieldrin in the river were of concern because they exceeded the environmental criteria set by the EPA for the long-term protection of the river environment.

- the concentration of chlordane and dieldrin in the drain exceeded the river environmental criteria, this is before dilution and mixing.

- pesticide levels in the tissues of the four edible fish species were well below the Maximum Residue Limit. This means that there was no likelihood of human contamination from ingestion of these fish.

1.4.2 Bayswater Catchment Monitoring

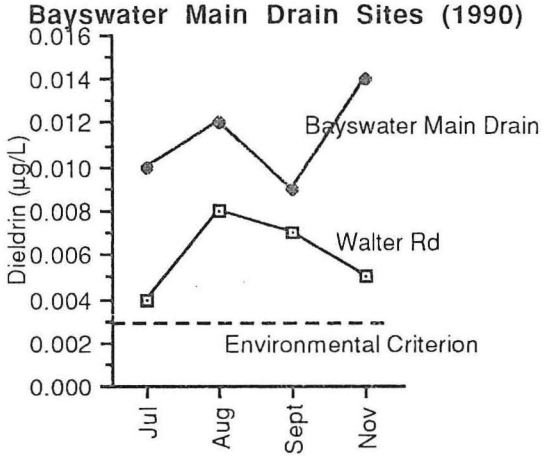
- the Swan River Trust is monitoring 5 sites with the aim of assessing the relative inputs of pollutants from different land-use types - principally residential and industrial.

- this programme is running in conjunction with the City of Bayswater industrial monitoring programme aimed at identifying polluters and improving housekeeping.

- parameters include; trace metals (Cadmium, Aluminium, Zinc, Lead, Chromium, Nickel,Iron); pesticides (organochlorines,organophosphates); solvents; nutrients (phosphorus,nitrogen); fluoride; surfactants; pH; bacteria; flow.

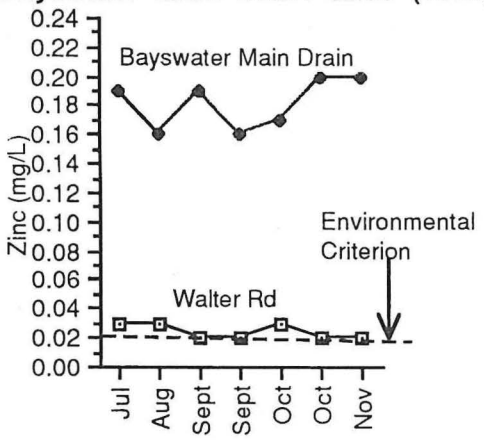
- Sites include;
  - King William St Branch Drain
  - Bayswater Main Drain at Slade ST
  - Gummery St near Catherine St
  - Walter Rd near Lovegrove St
  - Redlands St near Hackbridge Way

Dieldrin Levels at Walter Rd and Bayswater Main Drain Sites (1990)



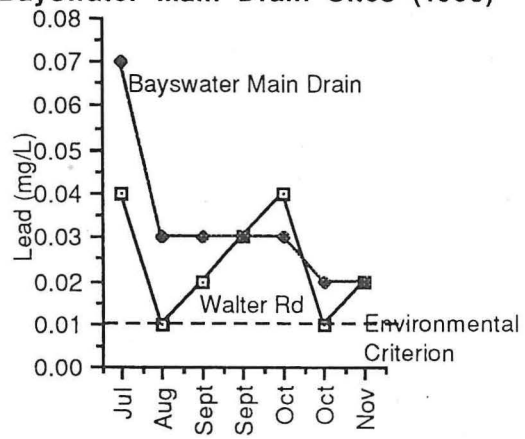
- preliminary dieldrin results show that even a totally residential catchment such as the Walter Rd catchment, discharges waters with dieldrin levels exceeding the environmental criterion (for River),

Zinc Levels at Walter Rd and Bayswater Main Drain Sites (1990)



preliminary Zinc levels show a low concentration from a residential catchment.

Lead Levels at Walter Rd and Bayswater Main Drain Sites (1990)



-preliminary Lead results show similar concentrations and fluctuations.

- Lead is ubiquitous in the urban environment. The major source is likely to be car exhaust and road runoff

- Total Phosphorus loading from the Bayswater Main Drain catchment is lower than the Belmont South Main Drain, a similar urban catchment.

- Total Nitrogen loading from the Bayswater Main Drain catchment is comparable to the Belmont South Main Drain and considerably higher than a rural catchment of similar soil type.

	TP (kg/ha)	TN (kg/ha)
Walter Road	0.003	1.02
Bayswater M.D.	0.22	3.1
Belmont M.D.	0.40	3.5
Meredith Ck (rural)	0.24	1.28

Table 1. Preliminary Phosphorus and Nitrogen Loading for the Bayswater Main Drain

1.5 Questions

1. Mr Ken Emery from Bayswater Green Alliance indicated he had been experimenting with Cyprus trees as nutrient filters. Suggested that mangrove trees planted along the foreshore would aid in nutrient removal.

This matter was deferred to be raised in a workshop session.

2. Leslie Smart from the Morley Progress association asked for clarification as to whether Copper was included in the monitoring.

Verity Klemm responded that Copper was tested and that the results were above environmental criteria. All other heavy metals were below the criteria.

3. Bevan Carter from the Bassendean Preservation Group queried the statement that only Copper exceeded that criteria.

Verity Klemm responded that that result was from the one off sampling relating to the health of the river and the more intensive results gained through the catchment monitoring indicated that other heavy metals exceeded the environmental criteria in the drain water.

4. Wayne Morrow asked whether the environmental criteria used were international or local.

Verity Klemm responded that the criteria were established by the EPA (WA) using a combination of national and international criteria that have been determined for estuarine and marine waters. The publication by EPA of a report called Water Quality Criteria for Marine and Estuarine Waters in Western Australia is the document used to establishing wether a water exceeds

environmental standards. The health aspects for fish consumption are set down by the Health Department of WA.

5. Jean True asked how reliable are those criteria?

Verity Klemm responded that a lot of information had been used before the criteria had been established. The EPA is currently reviewing those criteria. Normally with environmental criteria there is a safety factor for application. I think this is about a 100 times safety factor. For consumption of fish the safety factor is around 1000 times. So there is a buffer and we use the criteria in the form presented.

6. Eric Singleton, Bayswater Bird Sanctuary, asked why Bream wasn't included in the edible fish.

Verity Klemm responded that not Bream had been caught during the sampling run. The Trust is trying to catch some for the next round of analysis. The Swan River Trust is also involved in a programme over the entire Swan and Canning Rivers looking at pesticide contamination levels in fish throughout the system.

7. Val Humphrey from the Swan River Trust and the Steering Committee asked for a brief explanation of industrial licensing.

Verity Klemm responded Under the Environmental Protection Act (1986), Part IV of the Act relates to pollution control. The EPA has the overall responsibility of ensuring pollution control within the State. Some of these powers have been delegated. The Swan River Trust the power to control industry that is likely to impact on the waters of the Swan River. That enables the Trust to go into catchments and drains and licence those industries discharging water into a drain or creek.

The Water Authority has a similar delegation which also enables it to license industries that discharge into a drain. However, WAWA normally defers to the Swan River Trust if the wastewater is likely to discharge into the river. The Water Authority also has a delegation that allows them to licence those industries that discharge wastewater to groundwater. This may involve irrigation of wastewater or injection into bores.

The Swan River Trust looks after surface water and the Water Authority looks after groundwater. That's for large industries.

The smaller industries are not covered specifically, although the Act may still be used on them. The local authority takes on this responsibility of policing small industries using the Health Act. The EPA is considering ways to extend the delegation to local authorities.

8. Andy Miller, a ratepayer, asked why the Council hasn't prosecuted industry that pollutes the drain.

Mayor John D'Orazio responded that the Council is. It is necessary to get the evidence to prosecute and for this to stand up in a Court of law. That is sometimes difficult. When we do get a case of blatant pollution we do prosecute.

9. A resident from the Watley area asked are there still pollutants leaving the old CRESCO site.

Dr Judy Edwards responded that herself and the Town of Bassendean are concerned about that and have had discussions with the EPA and the Swan River Trust. And information is still being gathered.

Bayswater City Council has resolved to ask the EPA to investigate the CSBP site in Bayswater to assess the levels of contamination.

10. Pat O'Hara, Councillor from Bayswater, asked what action was being taken to force currently licensed industries to deal with their own waste rather than allowing discharge to the river. Is any legislation being formed so that in the future we have a river that does not have any discharges of 'toxic' waste?

Verity Klemm responded that the Swan River Trust has a policy of reducing the number of licenses that it issues to industries within the metropolitan area. Over the last four or five years we have reduced the number of licences from 24 to about 18. Some of that is through natural attrition through industry closing down, others are when sewer becomes available we require discharge of wastewater to the sewerage. The Trust works at getting industry to improve practices and as sewer becomes available we are slowly reducing the number of licences that discharge into the river.

It is important to note that the vast a majority of the industries that the Trust licences are fairly benign type industries. The bottle washing wastewater is definitely not worse than the water that goes into your septic tanks that move through the

groundwater and gets into the Bayswater Main Drain. These industries are not considered noxious under the Environmental Protection Act. They are small industries with generally very low volumes of discharge. There are exceptions to that and Swan Wool Scours of course is one.

2.0 Findings of Workshop Sessions

Participants were allocated to small groups to answer two workshop questions. These were;

1. What are the issues associated with the Bayswater Main Drain and its catchment?
2. What to you want to happen to the drain in the future and what type of activities would you like to be available?

The results of the workshop have been summarised into subject areas. The individual group results are presented in Appendix 1.

2.1 Summary of Issues and Solutions

The following is a summary of the workshop session relating to issues. Included in this section are solutions that were recorded in either the issues workshop or the future workshop.

Nutrients

-Detergents;fertilizers;animal fats;septic tanks.

-Legislation to control polluting substances (Phosphorus containing substances, fertilizers); establish consumer standards (composting; slow release fertilizers).

-Trap nutrients with indigenous species and filtration.

-Residential use of nutrients.

-Biological treatment methods for drain water.

Pollution

-From/by; oil washdown activities; pesticides; heavy metals; old refuse sites; industry; road runoff; petroleum tank leakage;

-Lack of knowledges of sources.

-Cumulative effects.

-Alternatives to polluting substances not developed.

-White ant control.

-Sources; residential;industrial; old landfill.

-Increase public awareness of the consequences of disposal practices.

-Biological treatment methods for drain water.

Industry

-Industrial licensing; business areas planned adjacent to drain.

-Lack of liquid and solid waste storage and disposal; need alternatives.

-Monitoring;policing; enforcement.

-Improve industrial practices through education, policing and evaluation.

-Register of industries required.

-Wastewater treatment plants.

-Industrial management programme to become ongoing.

-Perception that industries in the area are 'toxic'.

Sewerage

-Lack of reticulated sewerage.

-Bacterial problems; pump station overflow; septic tank leakage.

-Development without reticulated sewerage.

-Pump station located along drain.

-Spread of pollutants from septic tanks/ leachdrains/ soakwells.

-Building by-laws that increase housing density without reticulated sewerage.

Education

-Lack of public understanding.

-"Dirty drain" vs creek with natural water flow.

-Education and involvement aimed at community, schools and industry (guidelines).

-General complacency and disbelief that the environment is in danger.

-Community involvement.

-Involvement of other councils.

-On-going liaison with other organisations.

-Education about; nutrients; biodegradables; pollutants generally.

-Awareness program; women/community interest groups.

-Competitions for clean-up; recycling.

Drainage

-Appearance, visibility and ownership of drain.

-Lack of capture and infiltration basins.

-Lack of vegetation.

-Bank maintenance (weedicides).

-Use and protection of the clean water in the drain.

-Bank revegetation with native species.

-Volume of water in drain during winter; erosion diversion.

-Review functions of compensating basins to include recreation and wildlife habitats.

-Identify interconnecting drains by colour coding.

-Recreation activities in and around drain.

-Basin maintenance; mosquitoes; smell;health effects.

-Piped vs open; illegal dumping.

-Biological treatment methods for drain water (wetland filters).

-Future redevelopment to incorporate natural flow/contours in design.

-Recontouring of drain to a more natural state.

Monitoring

-It it adequate?

-Increased monitoring.

Flora and Fauna

-Impacts of drainage water.

-Restore wetlands and park areas with indigenous species.

-Create wildlife corridors.

2.2 Summary of Future Vision

This section provides a summary of the ideas that were recorded as future visions or expectations of the drain.

-Return areas to a more natural state including landscaping, tree planting, re-establishment of wetlands using existing parks, clean-up, widening and realignment of some drain sections, provision of emergency and catchment filters, use of reeds as a safety barrier, creation of a creek type environment.

-Benign contributor to the Swan River.

-Not an eye-sore.

-Local creek recreation resource.

-Creation of an environment centre.

-Redevelopment of the delta area at the mouth of the drain.

-Rename the Bayswater Main Drain a Creek.

3.0 Conclusion

by Dr Judy Edwards MLA

I said at the outset that we had three main aims for running today's workshop. The first one was that we should all understand what Integrated Catchment Management means and also that we should understand how that involved the Bayswater Main Drain. I think we are all now clear about that. The second aim was for all of us to understand the role of the Steering Committee and I think there has been clarification of that. The most important aim was for you to know how to have your input into this process.

There are a number of ways for you to make further contact with us. If you want to put it in writing please address it to the Integrated Catchment Management Plan Steering Committee and send it to the City of Bayswater. If you wish to use a less formal approach please feel free to contact Verity Klemm from the Swan River Trust (481 0121), officers from the City of Bayswater including Bob Kelly (272 0622) or myself (370 3550). The other avenue of input is through the three community representatives.

The issues that have been raised today will now by used by the Steering Committee to form Task Groups.

In closing I would like to thank all of you for making the time to come today nad particularly want to thank you for your input. The input and participation have been excellent.

I want to give particular thanks to Verity Klemm from the Swan River Trust who's really done a lot of the work that has made today so successful. I want to thank the officers from local authorities and government departments who have attended. I want to thank particularly the staff and students from John Forest Senior High School for their excellent work. A quick note of thanks to the facilitators, without you we wouldn't have all the information collated. Finally to the City of Bayswater for the venue.

Thank you all again. Please make contact with us because we need you and I look forward to having many more of these types of seminars.

Appendix 1. Group Results from Bayswater Catchment Management Workshop

INTRODUCTION

The information contained in this appendix has been transcribed from the record sheets of each workshop group. Only minor editorial changes have been made to the information recorded.

GROUP 1

Participants:

Andy Miller	Greenworks
John Hepple	Bayswater Art Society
Phil Gabriel	Bassendean Preservation Group
Raul Raiter	ADAS Pty Ltd
Kirsten Tullis	Resident
Wayne Morrow	Greenwork/Bayswater Council

Facilitator:

Phil Swain	Bayswater City Council

Issues

-Nutrients; detergents, fertilizers, animal fats, septic tanks.

-Pollution: from/by oil washdown activities, pesticides, lead, heavy metals, old refuse sites, electroplating, road runoff carrying heavy metals; petroleum tank leakage to groundwater.

- Lack of sewerage.

-Invisibility of pollutants.

- Industrial licensing; business areas planned adjacent to drain; increased residential, industrial and commercial areas; lack of liquid waste storage; lack of solid waste storage; lack of prosecutions.

-Bacterial problems; pump station overflow; septic tank leakage; threats to waterbirds; threats of mutagenic compounds reaching waterways.

-Lack of public understanding.

-Appearance, visibility and ownership of the drain

-Soakage areas; discharge to and knowledge of.

-Stormwater; spillages; pollutants; lack of capture basins; lack of vegetation; new residential areas; paved areas.

-Drainage; lack of infiltration (industrial area on peat).

Future Vision and Solutions

-Removing pollutants using filtration and vegetation.

-Monitoring.

-Rename Bayswater Main Drain as a Creek.

-Prevent illegal discharge by investigating existing branches, policing, monitoring (24hr equipment) and maintaining a register of drains.

-Returning areas to a more natural state including landscaping, tree planting,re-establishing wetlands in existing parks, clean-up, widening and realigning some drain sections, provision of emergency basins and catchment filters.

-Waste disposal alternatives.

-Community education; about nutrients (particularly fertilizers),biodegradables; strategies for individuals; written and oral communication; forming subcommittees within drainage subcatchments; encourage environmentally 'soft' industries.

GROUP 2

Participants:

Mike Erith	Teacher John Forest SHS
Jenny Roberts	Resident
Brenda Conochie	Maylands Greens
Audrey Brown	Morley Progress Association
Marlene Robinson	Bayswater Greenworks & Ratepayers
Eric Singleton	Honary Warden Bird Sanctuary

Facilitator:

Val Humphrey	Swan River Trust/Steering Committee

Issues

-Public perception; "Dirty drain" vs creek with natural water flow.

-Education and involvement; aimed at community and schools

-Legislation to control polluting substances (phosphorus containing substances, fertilizers particularly); establishing consumer standards (composting and slow release fertilizers); incentives (subsidies and tax breaks).

-Identify environmental trouble spots and issues for action.

-Need for sewerage.

-Improve industrial practices through education, policing and evaluation.

-Need to trap nutrients using indigenous native plant species; reeds to trap pollutants.

-Drain bank maintenance (weedicides).

Future Vision and Solutions

-Awareness program; women/community interest groups; consumer pressure.

-Vision; benign contributor to Swan River; not an eyesore; use reeds as natural safety barrier; local creek recreation resource (need for more P.O.S. currently under-allocated, needs increase with increased residential density); creation of an environmental centre; rehabilitation work; take lead from JFSHS.

-Ban environmentally damaging products.

-Prevent Swan River from becoming a drain extension by recreating a 'creek-type' environment including aquatic plants, reeds,tree planting and dual-use paths where suitable.

-Industrial management programme to be continued/on-going.

-Future redevelopment to incorporate natural flow/contours in design (e.g. remove right angle bends).

GROUP 3

Participants:

Peter Singleton	Resident
Shirley Hepple	Bayswater Art Society
John Zawada	Swan Waste Action Group
Anne Tumak	Teacher Morley SHS
Jan Steele	Teacher John Forest SHS
Keith Wall	Bayswater SES
Bevan Carter	Bassendean Preservation Group/ Greens (WA)
Jennifer Hawkes	Wetlands Action Group

Facilitator:

Ron van Delft	Steering Committee

Issues

-Filtration; is the system working as this now?

-Monitoring; is it adequate?

-Register of industries needed

-Only surface runoff being considered.

-Involvement of other councils along river and MRD for road spill potential.

-Not enough sewerage; current disposal through septic tanks.

-Lack of knowledge of sources of waste/pollution.

-Basin maintenance; mosquitoes; smell; health effects;children playing in open drains.

-Alternatives for waste disposal.

-Community involvement

-Cumulative effects of pollution.

-Leadership needs to be shown by councils particularly Parks.

-Alternatives to polluting materials not developed.

-Piped vs open; materials dumped illegally in open drains; open drain attract problems.

-White ant control causing problems.

-Use and protection of the clean water in the drain.

-Ongoing liaison with other organisations.

-Source of Copper a concern.

-Education; important.

-Building by-laws that increase housing density.

Future Vision and Solutions

-Use clean water for household purposes.

-Tree planting to absorb pollutants.

-Restore wetlands and park areas with indigenous species;create wildlife corridors and recreation focus.

-Increased filtration; mechanical, biological and chemical.

-Learn/educate to live with discomfort.

-Colour code drain inlets.

-Competitions for clean-up; recycling; signposting clean-up areas with sponsor acknowledged.

-Increased monitoring.

-Time line.

GROUP 4

Participants:

Linda Taman	Greenwork
Jude Allan	Environmentalist
Cate Ruben	Resident
Leslie Smart	Morley Progress Association
Graeme Renwick	Business

Facilitator:

Steven Wong	Waterways Commission

Issues

-Toxic leachates/pollutants from residential/industrial/old landfill.

-Banks to be revegetated with selected native species.

-Volume of water in drain during winter; erosion; diversion.

-Overwatering of catchment during summer.

-Dieldrin contamination in residential areas.

-Increase public awareness of the consequences of disposal practices; marking of drains.

-No development without reticulated sewerage; sewerage pump stations located along drain.

-Install industrial wastewater treatment plants within industrial sites.

-Contaminated road runoff.

-Impacts on birds and plant life; community group to monitor.

-Review functions of compensating basins to include beautification, resources and recreation.

-Grants to help fund activities.

Future Vision and Solutions

-Revegetation of the appropriate species.

-Education; schools;local papers/radio;industries (guidelines);workshops.

-Encourage native fauna to return.

-Community involvement.

-Reticulated sewerage.

-Recontouring of drain to a more natural state.

-Reduce borewater usage; licensing; limitations on usage.

-Creation of wetlands as biological filters.

-Redeveloping of delta area at the mouth.

GROUP 5

Participants:

Sally Wylie	Wetlands Action Group Stirling
Jean True	Ratepayer
Dorothy Thompson	Ratepayer
Amanda Stewart	Clean Waterways Coalition
Jan Lubout	Maylands Ratepayers Association
Frank Geenslade	Maylands People of the Peninsular
Arthur Watson	Clean Waterways Coalition/Steering Committee
Michelle Neervoort	Steering Committee

Facilitator:

John Gabrielson	Bayswater City Council

Issues

-Pollution from householders; nitrogen and phosphorus; need education.

-Identify all interconnecting drains by colour coding.

-Spread of pollutants from septic tanks/leachdrains/soak wells.

-Lack of reticulated sewerage.

-Biological treatment methods for drain water prior to discharge into river

-Action to locate sources and reduce levels of heavy metals in the drain and the catchment.

-General complacency and disbelief that the environment is in danger.

-Recreation suitability of the drain.

Future Vision and Solutions

-Introduce biological treatment methods for wastewater and pollutants.

-Investigate and encourage research into new treatment methods.

-Increase indigenous species of trees and bushes along the drain and surrounding areas.

-Improve the aesthetics of the drain for passive recreation.

-Capture and separate usable and non-usable waters; stormwater/industrial water.

-Educate the community; children; parents; industries.

-Provide local officers to educate residents of the need to be environmentally aware and concerned.

Appendix 2 Workshop Brochure

BAYSWATER INTEGRATED CATCHMENT MANAGEMENT

WHAT IS INTEGRATED CATCHMENT MANAGEMENT?

Integrated catchment management is a philosophy of approach for appropriate land and water management. The philosophy is based on the State Conservation Strategy and is a means of achieving sustainable activity.

In practice it is planning and managing our natural resources on a river, drain or groundwater catchment basis to achieve sustainable use which provides benefits for the community and the environment.

Integrated catchment management is also a process that produces a product. At this level it involves attitude changes, working together (the community, local and state governments) and setting common goals and objectives , considering their implementation and how this may affect future options or overly disadvantage any section of the community.

The process of integrated catchment management may result in a map, a set of recommendations or guiding principles, changes to a Town Planning Scheme or Council policies, an action plan or another format that suits a particular catchment.

What does Integrated Catchment Management mean?

INTEGRATED means: taking into consideration all the communities concerns and bringing these together to form a new view of the situation; broadening our understanding; changing our attitudes; and taking an all encompassing approach.

CATCHMENT means: a naturally occuring or created (e.g. drain) ecosystem with definable boundaries based on surface and/or groundwater systems. All internal environmental processes are linked. Water and its movement is the key linking the environmental processes, the ecology of the estuary, river (drain) and land are all interconnected.

MANAGEMENT means: using the above to set environmental and community objectives in order to determine the management course. The management action will need to address environmental, economic and social factors.

ICM IN BAYSWATER

Issues vary from catchment to catchment and different approaches are required for each. Within Western Australia integrated catchment management has focused mainly in rural areas. The proposal in the Bayswater area is for an urban integrated management plan to be developed.The idea for ICM in the Bayswater Main Drain is based on an example from an urban area in Newcastle, NSW, Throsby Creek.

The Throsby Creek Total Catchment Management Strategy was developed as a result of community concern over a number of pollution and recreational issues within the creek's catchment. It relied on the identification of Task Groups to investigate and develop recommendations relating to the identified issues. Members of the Task Groups were not necessarily members of the overall Steering Committee, this enabled relevant expertise to be incorporated into the process. It is this type of structure that is to be used in Bayswater (Figure 1).

The Bayswater Main Drain is the largest urban drain in the metropolitan area, with a catchment area of 27 square kilometres. Water quality issues have been the driving force within the catchment, other issues have also been identified by the community.

The structure outlined in Figure 1 enables small task or issue oriented groups to be formed to investigate specific areas. This enables expertise to be drawn from outside the Steering Committee.The structure outlined in Figure 1 enables small task or issue oriented groups to be formed to investigate specific areas. This enables expertise to be drawn from outside the Steering Committee.

The Task Group approach is useful in dealing with a catchment containing a number and complexity of issues. The Complexity of problems often deters any one organisation from tackling them. It is unlikely that any one organisation will have all the necessary resources (personnel with appropriate skills, facilities and/or equipment). Using Task Groups enables problems to be broken into smaller, more manageable units and the group members together, provide the required range of resources. Therefore, tasks can be 'bite-sized' and less daunting.The Task Groups advise and make recommendations to the Steering Committee. The Steering Committee is responsible for developing the overall Integrated Catchment Management Plan.

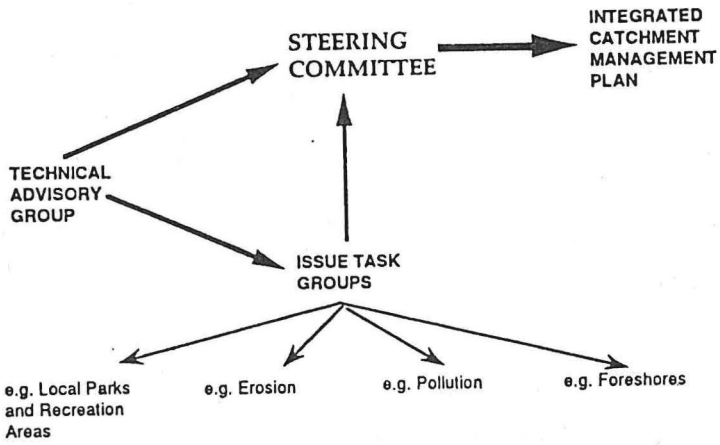


FIGURE 1. Structure of the Bayswater Integrated Catchment Management Group

COMMUNITY WORKSHOP

The aim of this community workshop is to enable interested people to become involved in the Integrated Catchment Management planning for the Bayswater Main Drain. One of the first steps in this process is to identify the issues and problems which are of concern now or in the future.

The issues and problems will then be grouped into similar subject areas and then used as a basis for establishing Task Group objectives. The Steering Committee will then establish the Task Groups, inviting community as well as Government (State and Local) representation.This workshop also enables interested people to register for involvement in different Task Groups, to help resolve issues of particular interest or concern to them.

DATE: Saturday March 16, 1991

VENUE: Bayswater City Council Offices

TIME: 10.00am to 1.00pm.

PROGRAMME

10.00am	Welcome
10.10am	Integrated Catchment Management in WA
10.20am	Integrated Catchment Management in Bayswater
10.30am	Local Government Activities
10.40am	Swan River Trust Activities
10.50am	Questions
11.10am	Morning Tea
11.30am	**Workshop Session 1** Issues in the Drain and its Catchment Groups are asked to identify issues and problems associated with the Bayswater Main Drain.
12.15 pm	**Workshop Session 2** Future of the Drain and its Catchment Groups are asked to identify what they want to happen to the drain in the future and the types of activities they would like to use the drain for.
1.00pm	Summing up and Close.