



A. Widjaja: Untitled (1950s) Watercolour and Gouache

Treatment Proposal

WATERCOLOUR OF A RICE PADDY

List of tables

Table 2.1	Risks and benefits of surface cleaning
Table 2.2	Risks and benefits of removal of secondary support
Table 2.3	Risks and benefits of humidification and flattening
Table 2.4	Risks and benefits of mounting
Table 2.5	Storage and display recommendations
Table 2.6	Advantages and disadvantages of treatment 1
Table 3.1	Risks and benefits of washing and alkalisation
Table 3.2	Advantages and disadvantages of treatment 2

1. Introduction

Two conservation treatment options are proposed in this document of increasing interventive levels. The first treatment option is the least interventive, with the aim of stabilising the object while using minimal aqueous treatment methods. The second option aims to improve the physical and chemical stability of the object, and its aesthetics through the use of aqueous treatment methods.

2. Treatment 1

Treatment 1 aims to:

- Stabilise the object so that it can be displayed or used in a collection
- Remove any materials that pose a risk to the object
- Store the object in an archival quality folder, protecting the object from excess handling

2.1 Surface Cleaning

- Surface cleaning will be carried out on the recto of the watercolour using a soft brush across the entire surface.
- During cleaning, the artwork will be placed over a smooth sheet of Reemay® to reduce damage caused by abrasions

Risks	Benefits
<ul style="list-style-type: none"> • Possibility of damaging the media • Possibility of manipulating dirt further into dips and cracks in the impasto paint areas • Possibility of damaging the support or changing the surface qualities of the paper 	<ul style="list-style-type: none"> • Removal of particles that can facilitate degradation of the paper¹ • Improve the aesthetic of the artwork • Reduces abrasions caused by surface dirt

Table 2.1 Risks and benefits of surface cleaning

2.2 Removal of the secondary support

- The secondary support may be a source of acidity², and due to the poor adhesion of the primary support, also a cause for the undulations in the artwork. Possible discolouration and further tensions can also be expected at the adhered areas.
- The artwork will be placed face down over a sheet of smooth Reemay® to reduce any possible damage caused by abrasions to the recto. The object will also be weighted to prevent excessive movement that may dislodge pigment on the recto. Backing removal will be done using a no. 22 scalpel blade to pare down the middle of the board without risking the object. Care will be taken around the adhered sections to prevent peeling or tearing of the primary support
- The four points of adhesive may require a poultice to aid in removal. Test areas will be done to aid in the selection of a poultice³ material. An interweaving layer of rayon paper will also be used to minimise residues on the verso. A water saturated swab will then be passed over the area to ensure full removal of the poultice material.

Risks	Benefits
<ul style="list-style-type: none"> • May cause physical damage to the primary support • Removal using localised aqueous treatments might lead to the formation of tidelines⁴ or distortions in the support • Possible residues of poultice material in the secondary support • The secondary support will not be kept with the object 	<ul style="list-style-type: none"> • Allows the full condition of the artwork to be determined through exposure of the verso • Inscriptions or additional information of the artwork may be found • Allows more conservation treatment to be completed, improving the longevity of the artwork • Stabilises the artwork from the possible off-gassing or acid transfer of the secondary support • Removal of animal glue which discolours and turns brittle with age. It also degrades at low pH producing acidic by products which may harm the paper.⁵ • Remove the cause of tensions in the corners of the artwork due to the thick application of adhesive • Improves the overall aesthetic of the artwork

Table 2.2 Risks and benefits of removal of secondary support

2.3 Humidification and flattening of the support

¹ Such particles can disfigure, obscure, abrade, cause stains, and increase the acidity of the paper. Metal impurities found in dust and dirt can undergo hydrolysis with increases in relative humidity (RH), releasing sulphuric or nitric acids.

² Wood pulp papermaking methods differ greatly, containing unknown materials e.g. residues of bleaching agents and chemical pulping agents (Paper Conservation Catalog, 1990)

³ A poultice consists of a substance (in this case water) to dissolve the adhesive and an absorbent. A range of material can be used as the absorbent, including Laponite™, Methyl Cellulose and Fuller's Earth. The absorbent should be easily applied, provide good control, and be easily removed. An interweaving layer is recommended to reduce residues.

⁴ Tidelines refer to stains formed when a paper is locally wetted, soluble degradation products of the paper migrate and redeposit at the wet/dry interface, thus forming a dark edge (Daniels, 1988).

⁵ (Horie, 1990)

- Solubility testing prior to treatment will determine the absorbency, size and, deterioration levels of the support, as well as the sensitivities of the media.
- The artwork will be gradually humidified using a Sympatex® chamber. Once the object is completely relaxed, it will be transferred to the nipping press, between sheets of Bondina® and blotting paper
- The press will remove undulations of the primary support

Risks	Benefits
<ul style="list-style-type: none"> • Moisture build up can cause condensation on the top of the chamber, which can drip onto the object, causing tidelines and solubilise media • The pressure from the press can cause changes in the surface texture, thickness, and appearance of the media 	<ul style="list-style-type: none"> • Allows paper fibres to relax • Controls stress in expanding paper⁶ • Reduce undulations in the support • Improve the appearance of the artwork

Table 2.3 Risks and benefits of humidification and flattening

2.4 Mounting

- A protective flap mount⁷ is recommended to allow access to the verso of the artwork⁸, and provide additional protection for the sensitive media.
- The artwork will be hinged directly to the mount using *T Hinges*⁹ along the longer, top edge of the print. The edges will be clipped by the aperture for added protection and security. Japanese paper¹⁰ of suitable thickness, strength, flexibility and colour, will be water cut¹¹ and used for the hinges, together with a dry wheat starch paste to reduce the detrimental effects associated with the introduction of excess moisture.
- Hinges may be placed slightly away from the corners to reduce tensions that may cause cockling along the edge
- A sheet of smooth bondina
- Museum board (100% cotton fibre, acid free) is recommended for used with a 4 ply thickness.

Risks	Benefits
<ul style="list-style-type: none"> • Introduction of too much adhesive along the hinges may cause tensions along the top edge of the artwork, causing undulations in the artwork • Excess adhesive can lead to the formation of tidelines or local staining of the area 	<ul style="list-style-type: none"> • Protects the artwork from direct handling, dirt, dust, pollutants, and a buffer against changes in RH • Enhances the aesthetic of the artwork • Object can be displayed within the mount if needed

Table 2.4 Risks and benefits of mounting

2.5 Recommendations for storage and display

Temperature	20°C +/- 2°C
Relative Humidity	50% +/- 5% with minimal fluctuations
Light	Display: 50 lux (exclude all UV light)

Table 2.5 Storage and display recommendations

Advantages	Disadvantages
<ul style="list-style-type: none"> • Improves the stability of the object • Removes surface particles that can facilitate further degradation of the paper • Improves the aesthetic of the artwork by removing undulations and presenting it in a museum quality mount • Provides additional protection from environmental conditions and handling through the use of a mount 	<ul style="list-style-type: none"> • Discolouration of the primary support remains untreated, distracting from the aesthetic of the print • Local treatment increases the risk of tidelines forming • Hinging directly on the artwork can cause cockling of the primary support, especially for a moisture sensitive support

Table 2.6 Advantages and disadvantages of treatment 1

⁶ (Brückle & Banik, 2012)

⁷ An additional board attached to spine of an overthrow mount to provide protection to artworks with thick impasto (Kosek, 2004). The flap can be turned to the back of the mount allowing display if needed.

⁸ An overthrow mount consists of a window mount hinged to a backboard using gummed linen tape along the top edge (Kosek, 2004).

⁹ Although less aesthetically pleasing, the T Hinge is strong, and causes less stress as the hinges attached to the artwork are not directly adhered to the mount, allowing the hinge to respond to the expansion and contraction of the artwork without causing tensions (Paper Conservation Catalog, 1988).

¹⁰ Preferably *kozo* paper made from mulberry, due to its long fibres (i.e. strong and flexible).

¹¹ The feathered edge produced will reduce the chances of indentations forming on the artwork.

3. Treatment 2

Treatment 2 aims to:

- Stabilise the object so that it can be displayed or used in a collection
- Remove any materials that pose a risk to the object
- Improve the chemical stability and the aesthetic of the object through a series of aqueous treatments
- Store the object in an archival quality folder, protecting the object from excess handling

3.1 Surface Cleaning

- See 2.1

3.2 Removal of the secondary support

- See 2.2

3.3 Humidification, washing and alkalisation

- See 2.3 for humidification details
- The object will be partially immersed along the mountain line in reverse osmosis water¹². This is due to the improved aesthetic the removal of the discolouration in the sky areas would have on the overall artwork. It also allows a more effective wash in the sky area without the need to immerse the entire object.
- Washing using double screens will also be considered due to the sensitivity of the pigment, and the high chance the impasto area of the artwork might swell. Double screens also allow the object to be supported throughout treatment, reducing handling and manipulation of the wet object. This may be followed by low-pressure table washing, to provide capillary action to pull discolouration through the support. This will also allow more controlled application of alkali to the top area of the artwork. The remaining section will be masked to prevent access moistening of the sensitive areas. Washing will be introduced in a short cycle to gauge the reaction of the support and media, followed by a longer cycle (approx. 60 mins)
- Subsequent washes will involve the addition of an alkaline to remove soluble acidity and neutralise acids in the paper
- Alkalisation will be continued until no further discolouration is released from the paper

Risks	Benefits
<ul style="list-style-type: none"> • May cause irreversible changes to the support and media in the form of colour, texture, opacity, loss of coatings and sizing¹³ • High pH levels may induce alkaline degradation, causing chain scission in the cellulose structure • Bleeding, strikethrough, and loss of media may occur • Offsetting of media during handling • Tidelines may form along the partial immersion line • Creases may form due to uneven drying on the low-pressure table 	<ul style="list-style-type: none"> • Improves the long-term stability of the object by removing discolouration, water soluble pollutants and harmful degradation products¹⁴ • Increase strength and flexibility of the paper • Alkalisation removes soluble acidity and neutralises acids in a paper • Leaves an alkaline reserve in the paper

Table 3.1 Risks and benefits of washing and alkalisation

3.4 Drying

- The object will undergo controlled drying after each washing cycle to minimise rapid contraction of the paper, which can lead to undulations. The object while still on the screen will be placed over several sheets of blotting paper, and a sheet of Perspex® will be placed over the top of the screen, leaving a slight gap for airflow.
- Should the object not dry completely flat, it will be dried under pressure between similarly textured Reemay¹⁵ and sheets of blotter. Pressing will ensure the object remains flat, reducing tensions in the impasto areas of the pigment.

3.5 Mounting

- See 2.4

3.6 Recommendations for storage and display

- See 2.5

Advantages of treatment 2	Disadvantages of treatment 2
<ul style="list-style-type: none"> • Improves the physical and chemical stability of the artwork through the removal of soluble degradation products, and neutralisation of acids 	<ul style="list-style-type: none"> • Loss of the secondary support • Risk of physical damage to the primary support due to mechanical backing removal

¹² Reverse osmosis water is purified, with the removal of copper and magnesium ions, 90-95%, most monovalent ions like sodium and potassium ions, chlorine, microorganisms and dissolved organic. Dissolved gases like carbon dioxide and small organic molecules remain in the water. More soluble substances will be removed from the paper with the use of purer water (Banik, 2012: p. 52).

¹³ (Paper Conservation Catalog, 1985)

¹⁴ (Tse, 2001)

¹⁵ The texture of the interweaving layer can affect the surface texture of the support. Care is take to ensure minimal changes in texture occur.

<ul style="list-style-type: none"> • Improves the aesthetic of the artwork by minimising discolouration, reducing undulations, and presenting it in a museum quality mount • Provides additional protection from environmental conditions and handling through the use of a mount • An alkaline reserve is created in the paper 	<ul style="list-style-type: none"> • May cause irreversible changes to the support and media during aqueous treatment • Paper will be at greater risk to physical damage while wet • Insoluble degradation products will remain in the support
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Table 3.2 Advantages and disadvantages of treatment 2

4. Conclusion

Treatment 2 will be carried out to improve the longevity of the artwork. While it proposes more interventive treatments and greater risks, the physical, chemical and visual integrity of the artwork will be much improved.

5. Bibliography

Banik, G. (2012) 'Properties of Water', in Banik, G. and Bruckle, I. *Paper and Water*, New York: Routledge. pp. 23-55.

Bruckle, I. and Banik, G. (2012) 'The Introduction of Water into Paper', in Banik, G. and Bruckle, I. *Paper and Water*. New York: Routledge, pp.255-288.

Daniels, V. (1988) 'The Discolouration of Paper on ageing', *The Paper Conservator*, 12(1), pp. 93-100.

Horie, C. V. (1990) 'Deterioration of skin in museum collections'. *Polymer Degradation and Stability*, 29(1), pp. 109-133.

Kosek, J. (2004) *Conservation Mounting for Prints and Drawings*, London: Archetype Publications Ltd.

The Book and Paper Group of the American Institute for Conservation of Historic and Artistic Works (1985) 'Chapter 20: Alkalization and Neutralization' in *Paper Conservation Catalogue*. 2nd edn. Washington D.C.: American Institute for Conservation Book and Paper Group.

The Book and Paper Group of the American Institute for Conservation of Historic and Artistic Works (1988) 'Chapter 40: Matting and Framing' in *Paper Conservation Catalogue*. 5th edn. Washington D.C.: American Institute for Conservation Book and Paper Group. pp. 1-59.

The Book and Paper Group of the American Institute for Conservation of Historic and Artistic Works (1990) 'Chapter 4: Support Problems' in *Paper Conservation Catalogue*. 7th edn. Washington D.C.: American Institute for Conservation Book and Paper Group, pp. 1 – 122.

Tse, S. (2001) 'Effect of water washing on paper and cellulosic textiles: An overview and update of CCI Research', *The Book and Paper Group Annual*. 20, pp. 35-39.